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TREATMENT OF THE ACIDOSIC AND SUGAR STATES FROM TRAUMATISM.

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It was very early recognized that traumatism produced profound metabolic changes, even when applied surgically. To one of the surgical consequences, Dupuytren applied sixty years ago the term *delirium traumaticum nervosum*.

Since the antiseptic era, especially, this condition has been noticed repeatedly after operations, when minute attention was paid to surgical detail, and particularly to nervous states, because of the fear of nervous effects of antiseptics.

The fact, however, that these nervous manifestations were due to the constitutional effects of operations, independently of their nature and seat, and independently of the effects of antiseptics and anesthetics, was pointed out by J. William White, of Philadelphia, who called attention to what he designated as the constitutional effect of the operation *per se*. This constitutional effect was of an alterative character, similar to that action which the older therapists ascribed to counterirritation. That this alterative effect had at times beneficial results was shown by the benefit occasionally received by the insane from traumatisms and from illogical surgical operations.

The *delirium traumaticum nervosum* of Dupuytren, in its clinical characteristics, was practically identical with the autotoxic and toxic psychoses. It had a confusional, hallucinatory phase, usually unattended with an emotional basis, but accompanied with aggressive tendencies. The relationship shown in the alternation of diabetes with the psychoses threw some light on the underlying element of this *delirium traumaticum nervosum*, as also did the relation of gout and rheumatism similarly with like nervous and psychic states.

The fact that in many instances diabetes and acid conditions alternated with psychic and nervous phenomena showed that disturbed metabolism underlay these.

During the past year numerous observations have shown that even the slightest traumatism, surgical or otherwise, may be accompanied with glycosuria and acidosis. Coriat has shown that all the depressed states are accompanied with acidotic conditions, which are the product of suboxidation that follows depression and continues it. The same factors following surgical operations have recently been observed by J. A. Kelly.

Urinalysis in surgical cases tends to indicate that the constitutional effect of operations is along the line of interference with oxidation, and that many of the cardiac strains are really due to increased arterial tension, arising from maloxidation. That traumatism arising from accidents may produce glycosuria and allied states has recently been legally decided in London. The question of diagnosis of these conditions is, therefore, of importance from the therapeutic aspects to which this paper is devoted.

The normal acidity of the urine is from thirty to forty-five degrees. If it fall below thirty, acid is very probably not being eliminated. If it rise above forty-five, acid has been formed in great quantities, and is being eliminated in such manner as to test renal sufficiency very severely. When the acidity rises above forty-five, evidences of renal strain appear—first, in cylindroid, and, second, in hyaline and granular casts. These conditions indicate a strain on the eliminatory powers of the kidney, which may end in permanent kidney lesion. Concomitant with these renal changes are hepatic strains and irregular intestinal fermentations, indicated by indicanuria.

The indication here is, first to increase oxidation by the use of respiratory stimulants, and, second, to decrease acidosis by the use of alkalis, pre-eminent among which is sodium bicarbonate.

Traumatisms are usually accompanied by constitutional changes, independent of pressure or of hemorrhage. The principal disturbances resulting from traumatisms are an irritable, suspicious state, which sometimes amounts to a complete change of character, and may be accompanied with secondary hallucinations and delusions, sometimes so systematized as to constitute paranoia. There are also recurrent and periodical conditions, some of which assume the ordinary simple psychic types of mania and melancholia alternation; then, again, assuming confusional mental recurrences, and sometimes type of aphasic recurrences as well as of epileptic types. That complex psychosis, parietic dementia, may, as Kiernan pointed out nearly twenty-five years ago, follow skull traumatism. There may likewise be attacks of a recurrent vertiginous type, accompanied with the usual phenomena of diabetic coma and the psychic nausea that so frequently occurs with that type of coma. All these conditions may follow skull and general traumatisms, and in all these there is evidence that metabolic alterations and instability have resulted. The recurrences may pass into the suspicious persecutory

states, with permanent alteration of character and resultant paranoia. In these recurrences there is an underlying factor of autointoxication, to which Kiernan has called attention in a paper read before the Evans-ton branch of the Chicago Medical Society. In these states, as in the condition of depression pointed out by Coriat, the products of suboxidation are usually acetone and diacetic acid, and more rarely B-oxybutyric acid. The presence of the last substance indicates that the tissues have been attacked, and that wasting and extreme poisoning are likely to result. In such cases there are usually excessive polyuric and watery intestinal evacuations. When these last occur, cardiac syncope is an imminent possibility. Despite the apparent contraindication, these conditions are most effectually met by large doses of a watery solution of sodium bicarbonate. In some instances the use of a gallon of a watery solution of sodium bicarbonate has cut down the polyuria from three gallons to one, and has checked the intense tissue changes.

The surface resemblance of some of these acid accumulations, precedent to the traumatic mental and nervous recurrence of the type just described, to ptomaine poisoning, is very striking, and the diagnosis is frequently made. Indeed, it is probable that some of the permanent aphasic states charged to ptomaine poisoning have been really due to traumatic acidotic conditions. The traumatism being the exciting rather than the predisposing factor, the question naturally arises: Can a therapeutic diagnosis be made with sufficient accuracy in these conditions to serve as a guide to prophylaxis? In all diagnoses there should be three factors—the etiologic diagnosis, the nosologic diagnosis and the therapeutic diagnosis.

In these traumatic conditions the etiologic diagnosis, so far as its primary or predisposing factor, is clear. The secondary or exciting factor requires more logical analysis. As already shown, traumatism produces metabolic instabilities along the line of suboxidation, finding expression in glycosuria and in the sugar acids: Acetone, diacetic and B-oxybutyric acids. To the extent of this acidotic state urinalysis furnishes a clue.

If the urinary degree of acidity be less than 30, the acids formed are not being excreted, and are tending to accumulate in the system. If the urine contains acetone, acid formation is proceeding at an intense rate, and this is still more the case if diacetic acid be present; while the presence of B-oxybutyric acid indicates deep-seated, intensely poisonous metabolic changes. A decrease in the acidity of urine in a traumatic indicates the imminent probability of some nervous explosion, which may vary from an intense neuralgia to coma, and to an agitated confusional insanity.

Here the therapeutic indication is to decrease the acidity in the system and to increase elimination. As the strain is chiefly on the kidneys, elimination should be diverted from these organs to the intestinal canal by the use of hydragogues, like chionanthus, apocynum, asclepias, ela-

terium, etc. In another paper recently published I have shown the action of these drugs, and suggested a formula, which in my hands has proved of marked benefit in these cases. After a few days' vigorous use of these hydragogues, I have substituted for them Abbott's saline laxative, and continued its use for some considerable time.

In the conditions above referred to there is invariably increased cardiac strain from the exaggerated arterial tension due to the acid states. This should be guarded against by the use of respiratory stimulants like strychnine and aspidospermine, since these drugs better than any others will give tone to the heart and increased oxidation, the diminution in which is one great factor in the acid conditions, whether resultant on traumatism, or on other causes.

The question of sleep, or, rather, of rest, will require attention. Were it not for their effect on the intestinal secretions, opium and its alkaloids would be ideally indicated, since they are good cardiac tonics as well as narcotics. The influence which opium and its alkaloids have on the secretions, however, contraindicates their use (with the exception of apocodeine muriate, which alone has a laxative action). Heroin has less inhibitory influence than morphine, but its exhibition hypodermically is apt to be attended by nausea.

Local hydrotherapy is indicated. Cold sponging down the spine and on the inner and outer aspects of the thighs is apt to be attended by a rapid tonic reaction, which increases the circulation from the interior to the exterior, thereby tending to increase oxidation.

A CLINICAL STUDY OF THE DIAGNOSIS OF URINARY CALCULUS.*

BY BRANSFORD LEWIS, M. D., St. Louis.

Diagnosis of Stone in the Bladder.—We are all familiar with the classical symptoms of stone in the bladder. The frequency of urination that is prone to occur in the day time, while the patient is up and about, agitating the foreign body within the organ and increasing the irritation that subsides so markedly when the patient rests quietly in his bed (this in contradistinction to the frequency from prostatic hypertrophy that occurs especially at night); the common occurrence of blood in the urine, especially at the end of urination; the characteristic stream, suddenly interrupted by the falling of the stone over the vesical outlet, plugging it completely and at once, permitting the renewal of the stream only when it is floated or jolted out of the way; then the resumption of the full stream, unless again suddenly interrupted in the same manner. When such typical symptomatology is followed by investigation with

* Read at the annual meeting of the Missouri State Medical Association, Excelsior Springs, May, 1905.

the stone-searcher, and the click and grating feel are obtained, the diagnosis is certain, and one almost wonders how it is ever possible to overlook or be misled about the diagnosis of a condition so clearly and distinctly defined; and one would hardly expect to meet with a case in which a stone as large as the one I herewith present for your inspection (Fig. 1, No. 34), had been left in a bladder, unsuspected, only two weeks before I first discovered and removed it; yet such is the fact. The patient was not only assured by the gentleman who had him in charge that his bladder was free of any foreign content, but he was strongly advised against consulting a "specialist" in his search for relief, as a specialist would certainly "want to operate on him, instead of curing him without operation, as should be done." A brief history of the case is as follows:

Case 1.—G. M. W., male, aged seventy years at the time of first conference on October 22, 1903. Some time during 1900 the patient began to note hesitancy and slowness of his stream, together with increased frequency of urination, especially at night. In August, 1901, while at Chautauqua, New York, there was sudden and severe difficulty in urinating, requiring the use of the catheter for a week or more. His condition was then considered so serious that he was sent to Buffalo, New York, where Dr. Phelps opened the bladder supra-pubically and drained it for three months, which secured much improvement. In 1903, at Lincoln, Nebraska, he had another attack of difficult urination, chills, fever, suppression of urine and unconsciousness for twenty-four hours (uræmic?). He was catheterized and irrigated regularly for several weeks, and incidentally was examined by the surgeon in charge, who told patient that there was enlarged prostate, but that further than that the bladder was clear. Two weeks later he came to St. Louis.

When he came to see me he was emaciated, weak, pale, and hardly able to walk. He was passing large quantities of pale urine, 1003 specific gravity, containing much pus and albumin, and several forms of casts. Physical examination showed a very considerably enlarged prostate, about five ounces of residual urine. The soft rubber catheter was obstructed on reaching the prostatic region; but the metal catheter of full curve entered the bladder, and on manipulation detected the gritty feel of a stone of good size.

While it was evident that some operation had to be undertaken to remove the stone, it was also apparent that any endeavor of that kind had to be minimized as much as possible, else the old gentleman would not stand it.

After a week's preparatory treatment, on October 28, 1903, under *local anesthesia*, by means of infiltration fluid, I made a supra-pubic incision into the bladder and removed the large stone which I now present. Its dimensions are $2\frac{1}{8} \times 1\frac{1}{2} \times 1\frac{1}{4}$ inches, and weight 13 drams and 23 grains. On opening the bladder about two ounces of pus flowed out

of the stone-pocket in the upper portion of the bladder. During the operation the patient was, of course, entirely conscious, but the anesthesia was so successful that he did not complain at all, in which respect he was very agreeably surprised, in that he had been very nervous and anxious as to the suffering which he thought could not be avoided.

Nothing was done about the prostatic obstruction at this time, except that it was felt to be caused by a prostatic bar at the posterior commissure. Complete drainage was established by means of two soft rubber catheters tied into the supra-pubic opening, with a continuous stream of saline solution running for the first twenty-four hours, and interruptedly thereafter for a few days. There was no depression from the operation; on the contrary, he became free from pain for the first time in two years, he said, and he was soon sitting up in bed, and then around the room. He visited my office in just three weeks after the operation, and had in the meantime regained much strength and spirit.

With the marked obstruction presented by the enlarged prostate there was little or no chance of the supra-pubic fistula closing, or of even approximate restoration of the urinary tract to normal; therefore, the effort at clearing up the obstruction was next considered. It was realized that the patient could not withstand much or severe operative interference; and since the obstruction was in the shape of a bar, it was possible that a Bottini incision would accomplish the opening up of the channel. Again, under local anesthesia, on December 8, 1903, a generous posterior electro-incision was made by the Freudenberg cautery; no pain or hemorrhage incidental to it. A few days later there was some gastric reaction, and temperature elevation to 103°. The opening of the urethral passage was demonstrated by filling the bladder through the upper opening and allowing the patient to pass it out the normal route, which he did in a good, full stream. Sounds were passed occasionally. With assistance of some renewal of the wound-edges and closure with the French metal stitches, the supra-pubic opening later healed, after which the patient recovered his ability to urinate voluntarily in a full stream and completely empty his bladder. He has been doing this for more than a year now, has recovered his general health, has taken trips both east and west, and lives in a comfortable manner, as he pleases, free from all urinary troubles.

The overcoming of the difficult conditions by operating in successive steps and without the use of general anesthesia, were both conservative and successful. He would probably not have lived through a more heroic plan of action; and a non-operative plan would not have secured any but temporary benefit, adding nothing to his fast-diminishing lease on life.

Some surprise may be occasioned by the fact that the bladder was sounded and so large a stone as this not found, hardly two weeks before his arrival in St. Louis. It is probable that the sound did not enter

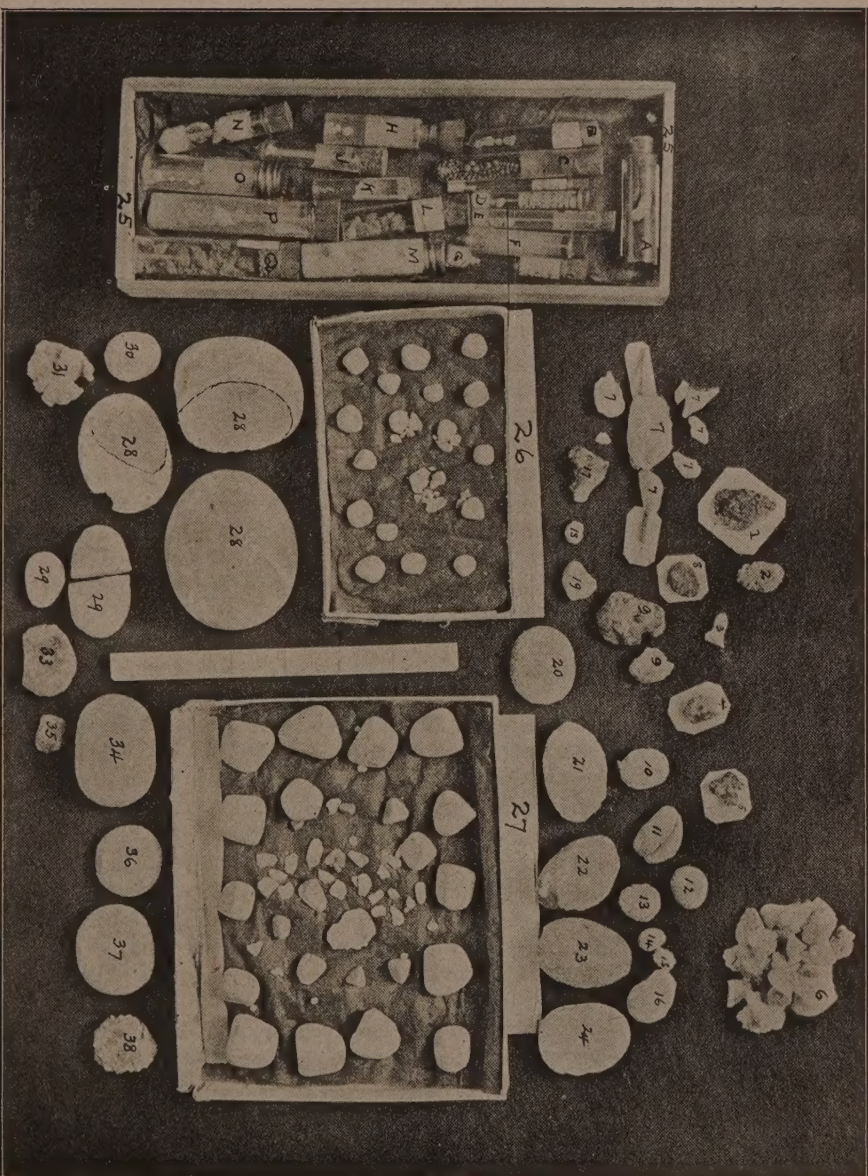


Fig. 1.—Dr. Lewis's collection of Urinary Calculi, reduced to one-fourth natural size.

far enough into the bladder to reach the stone; that its entrance was impeded by the large lobes and bar of the prostate, leading to the false conclusion that the viscous contained no stone.

The next case related is one that gave me a history strongly suspicious of calculus in the bladder, and with that suspicion in mind I examined with the stone searcher and failed to find the object of the quest; nevertheless, on applying additional methods of investigation I was successful in finding this stone, which I show you, and removed at a later date. (Fig. 7, No. 38.)

This, by the way, is quite a peculiar stone, a stone of crystallization, the whole surface being covered with sharp pointed spiculæ, of pure crystal formation like quartz, and it is no wonder, therefore, that the patient's most urgent complaint was with reference to the severe pain that occurred for fifteen minutes or a half hour after each urination, often requiring him to lie down for that length of time for relief. The spiculæ acted as so many thorns against the tender and inflamed mucous membrane of the bladder, especially at the end of urination, when the bladder became empty and contracted on them. I have never seen another stone of this formation.

Case 2.—T—e J—n. Aged fifty-seven, male. First conference March 16, 1904. German; married; merchant. For the last three years this patient had suffered from pain in the perineum, both during and after urination, and also on experiencing a jolt or jarring or rapid walking. This pain had gradually increased in severity until the patient could hardly attend to his regular duties. He had not noticed blood in the urine, although he had observed some sediment. He had noticed sudden stoppage of the stream, starting again later after waiting a few minutes, or on walking around the room. He had to urinate frequently, both day and night, but the most emphatic complaint was of the pain directly after urination; also, there was slowness in starting and difficulty in the passage of the urine. There were seven ounces of residual urine at the time of the first examination with the soft rubber catheter which entered the bladder easily. While this history gave rise to strong suspicion of stone, none was felt on introducing the Thompson searcher into the bladder, but when the retrograde cystoscope was placed in the bladder, it showed a beautiful picture of a rough, jagged stone of considerable size, lying deeply in the *bas fond*, behind the posterior commissure of the prostate. When this stone was removed by a perineal incision on March 23d, at St. John's hospital, it was readily seen why so much pain should have been experienced. It was covered with a number of sharp speculæ, pointing in all directions. It was closely attached to the bladder mucous membrane, so closely in fact that was removed from its nest with considerable difficulty and danger of tearing the mucous membrane. While it was being removed the finger had to be inserted through the perineal opening to peel the mucous

membrane from the stone. It is the roughest stone, and most irritating in its character, that I have ever observed. One can readily imagine the amount of pain that would be occasioned by the contracting together on it, of the bladder walls.

Following the operation there was satisfactory recuperation and the patient has been relieved of his pain and many symptoms, and has regained completely his general health.

In this case, no obstruction was found connected with the prostate, so that no operating had to be done on that organ.

That a stone of moderate dimensions may be of slow growth, and exist a long time without being discovered, the patient meantime passing through the hands of a number of the profession in different parts of the country, is illustrated in the case from whom I removed the accompanying stone. While no difficulties were presented in the detection of the stone by means of the searcher in this instance, and it might have been found as easily by anyone of those who saw the case previously, it is a fact that he had never been examined for stone before his first interview with me.

Case 3.—G. D. R—d, of Keokuk, Iowa, aged sixty-four; banker, American, married. Referred by Dr. Payne, of Keokuk, Iowa.

Symptoms in this case began four years before his first conference with me on July 13, 1903.

The symptoms were initiated by irritation in the bladder, that at first was only temporary, after which there was no trouble for six months, when there was a renewal of the irritative symptoms and clouding of the urine. Then Dr. Payne used boric acid solution as a bladder-wash for a time. Last fall he went to a sanitarium in Milwaukee, Wisconsin, where the bladder was washed regularly over a considerable period. On account of difficulty in urination, he had been using a catheter for the most part of the past year, drawing his urine off from three to six times in twenty-four hours. Physical examination showed no enlargement of the prostate, refuting what had previously been accepted as the diagnosis in this case. The stone-searcher readily came in contact with the calculus in the bladder, clearing up a diagnosis that seems to have been obscure for a considerable length of time. Operation July 13, 1903, by a perineal incision; the finger introduced into the neck of the bladder showed a marked contraction at the bladder neck—to such a degree that I could hardly enter the organ with the finger. To do away with this, the uterine dilator was introduced into the neck of the bladder, and successive stretchings did away with the narrowing at that point. After this, the forceps was introduced into the bladder, and the stone readily removed. (Fig. I, No. 36.) Double catheter continuous drainage was maintained as usual for twenty-four hours, after which it was interrupted and then removed altogether in about five days. There was union of the wound and

prompt recovery on the part of the patient, who regained his health and spirits.

Case 4.—F—k Z—n, St. Louis, aged forty years; engineer; German-American; married. Referred by Dr. H. M. Pierce, of St. Louis. First conference December 4, 1903.

One year previous to his coming, the patient first began experiencing the symptoms which gradually increased until the time of the final operation. They began with frequency and urgency in urination. The passage of urine usually gave considerable relief with the exception of some after-burning. Sometimes he found small clots of blood, but never bloody urine. The pain was most marked in the lower glutea regions along the bottom of the penis. There was never any pain in the kidney or ureter regions, except one time when there was a sudden severe pain in the left lumbar region.

Three weeks before our first conference, the patient passed five little stones in one morning and three in the afternoon. Then, a week later, five more, and each day afterwards some passed. Altogether, he thinks, about twenty-five small calculi were passed voluntarily. A soft rubber catheter readily passed into the bladder, draining about one ounce of residual urine, cloudy and containing pus and blood. There was excruciating tenderness of the urethra and bladder. A stone-searcher detected a slight but definite stone click. Cystoscopy under cocaine anesthesia revealed a stone with phosphatic incrustations, a stone about the size of a hickory nut.

Under chloroform anesthesia, on December 16, 1903, the bladder was entered through the perineal incision. The neck of the bladder was found to be much contracted and was forcibly dilated by means of the uterine dilator. A stone was readily felt and removed. (Fig. I, No. 37.) A soft rubber catheter was left in for drainage, after which there was prompt and satisfactory recovery, complete disappearance of the symptoms that had persisted for more than a year previous to the operation, and regaining of perhaps sixty pounds in weight, with considerable improvement in general health.

Case 5.—Chris C—, of Missouri; aged fifty-eight; German; married; obstructive hypertrophied prostate and multiple vesical calculi.

This is another case in which there was both enlarged prostate with obstruction and multiple calculi, and yet the symptoms began only six months before his first consultation with me. He arrived September 26, 1904. Six months previous he first noticed blood in the urine, and pain in the back in both lumbar regions, radiating forward into the testicles.

At first the attacks of sharp, cutting pains would last only a minute or two, but later they became more severe and more prolonged, finally rendering him unable to pursue his work. At one time he passed two small stones through the urethra, and a week later he passed another stone. He gives the history of sudden stoppage of the stream in the

course of urination. The history was very strongly suspicious of stone in the bladder, and yet when I put the Thompson searcher into the bladder I could feel no click. I tried the same with the bladder empty, and later while it was filled with fluid, but in neither case could I detect the click of the stone. It was observed, however, that the searcher was rigid and badly borne, so that perfect examination with this could not be carried out. Under cocaine anesthesia, the next day at the Deaconess Hospital, examination by means of our retrograde cystoscope showed as plainly as could be, stones in the bladder, the largest the size of a pigeon's egg.

On October 5th the perineal incision was made in the bladder, and the prostate was first attacked. It was found to be exceedingly dense and hard, and no point of cleavage for enucleation could be discovered; consequently it was fairly tunneled through by means of biting forceps and periosteal elevator and scissors. Finally, a good-sized channel was made through the prostate, after which, by means of a stone scoop and forceps, three stones were found and removed from the bladder. (Fig. 1, Nos. 18 and 19.) Double drainage was maintained continuously for the next twenty-four hours. There was gratifying and rapid improvement, with no tendency towards contraction of the prostate urethra.

The patient within three weeks was passing a good, free stream, and completely emptying his bladder, leaving no residual urine therein. He returned to his home entirely comfortable, and his general health has improved accordingly since that time.

My failure to detect the stones in this case with the searcher was due mainly to the interference offered by the prostate in the rigidity with which it held the instrument, and also the acute tenderness of the urethra and bladder. Under chloroform anesthesia it is probable that they would have been felt by the searcher. It is worthy of note, however, that the retrospective cystoscope, which showed the stones plainly without touching them, did so without chloroform anesthesia. Under proper precautions the use of the cystoscope is not attended with more pain than that incident to the passage of a metal sound. The searcher is not more painful *in its passage*, either, but to be effectual for its purpose it must have freedom of movement within the bladder; it must *feel* the object, whereas the cystoscope has but to bring it within the field of vision from afar, so to speak.

Case 6.—J. D. M—e, St. Louis; male, aged fifty-five; American; married. Referred by Dr. Wheeler Davis of St. Louis. First consulted me January 1, 1905.

Notwithstanding the large number of calculi found in this patient's bladder when he was examined, the symptomatology, as described by him, began only six months before the time of his first conference with me, January 1, 1905.

He noticed difficulty in urinating, together with undue frequency

of the act. He soon found it necessary to use a catheter, and for three months he had been using it three or four times daily. Two months before he had found three small pieces of stone in one day; none since that time. There had been no blood in the urine.

Five weeks ago, while driving a wagon, he was hit by a street car and knocked forty to fifty feet, since which time the bladder symptoms have been more severe than previously.

A soft rubber catheter was daily introduced into the bladder and drained four ounces of residual urine. A metal instrument readily gave the stone click. The retrograde cystoscope showed as many as six calculi, although we were unable to say whether there were more than that in the bladder.

On January 4th, under chloroform anesthesia, a perineal incision was made into the bladder, the neck of which was stretched with a uterine dilator, after which, by means of curved stone forceps, stone scoop, etc., eighteen calculi were rapidly removed from that organ. (Fig. 1, No. 26.) The stones varied from the size of a pea to that of a hazelnut. At the same time it was noticed that the prostate projected into the bladder from the posterior and lateral aspects, and these parts of the gland were removed through the same incision. Continuous irrigation by two soft rubber catheters was kept up for the first twenty-four hours.

The patient rapidly improved, and within two weeks was feeling better than he had been for a number of months previous to the operation. He had at the time of his first consultation been meager and weak, and possessed of very bad color. A month later he had improved in all these respects, and he has gone back to his work. The perineal opening has healed, and he has gained thirty pounds since the operation.

The next case to be related is remarkable from several standpoints. He had a remarkable number of stones, of considerable size, in his bladder; was the subject of obstructive hypertrophy of the prostate to a marked degree; and was humpbacked (kyphotic) to an extent that, in connection with his generally debilitated health, seemed almost to preclude any sort of operative interference; and, finally, after having opened the perineum and taken out a number of stones from the bladder—having a direct avenue of approach through this perineal opening—by using the sound or stone-searcher, I was unable to feel them, although there were *five more stones in the bladder at the time*.

C. S. S. McC., aged fifty-five; traveling salesman. When he arrived for conference the patient was so debilitated and nervous that, practically no examination could be made; he was, therefore, simply questioned and referred to the hospital, where he recuperated under the internal and local antiseptic measures applied and the rest was made to take, after which a sound introduced readily gave the stone click, and the cystoscope disclosed multiple calculi—so many that

hardly believed the evidence it gave. An x-ray photo was taken by Dr. Carman, which shows the stones *en masse*, about the size of a closed fist.

On August 5, 1904, under chloroform anesthesia, the bladder was opened through the perineum, the prostatic urethra and vesical neck were dilated with the uterine dilator, after which, in addition to several stones presenting, the finger readily discerned three large, globular projections of prostate into the organ. While the removal of the prostate at first would undoubtedly have given better access for the removal of the stones, it was deemed necessary to be as conservative as possible, in view of the low vitality of the patient, and on that account the prostate was not attacked at that time. With scoops and forceps and fingers, about a dozen calculi were raked out of the bladder, one, two or three at a time, whereupon no more could be felt, either with the finger or the scoop. A stream of warm water was then run rapidly into the bladder, swelling it out, and as the water returned, bringing more of the calculi within reach, they were removed in a similar manner. This was continued until about twenty stones had been gotten out, when no more could be felt, even after several washings.

The washings and manipulations had consumed something like thirty or more minutes; it was not considered advisable to expend any further time in operative measures, even though it could not be determined positively that no more stones were left. A continuous stream of saline solution was kept running through the two-way drainage apparatus for the next twenty-four hours. There was no undue bleeding, no rise of temperature, and recuperation was as prompt as could be desired. A few small pieces of stone were washed out in the irrigations that were made daily in the next two weeks. Through the perineal opening a sound was inserted, but no stones were felt.

On August 20th, under cocaine anesthesia, the retrospective cystoscope was introduced through the same opening, and as pretty a picture was presented as one would wish to see, viz.: five little stones, lodged as if in a nest, underneath the overhanging posterior lobe of the prostate, in a position in which they could hardly be felt with a metal instrument, even though sharply curved. (Fig. 2.)

On August 23d the patient was again put under chloroform anesthesia, the perineal wound enlarged, the interfering posterior lobe of the prostate shelled out, and the balance of the calculi scooped out.

Recovery from this operation was as prompt as from the first, and the patient went to his home in Illinois on September 1st and shortly afterwards entered on the discharge of his duties as traveling man.

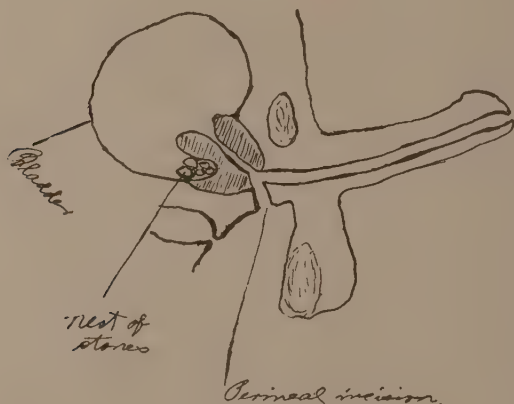
Successive visits showed that he recovered his ability to urinate with satisfaction (almost a pleasure, as he put it), and to completely empty the bladder; and the various symptoms of irritation all disappeared.

The total number of stones removed from this case was twenty-eight;

in size varying from that of a pea to that of a pigeon egg. (Fig. 1, No. 27.)

I have observed reports of a larger number of *small-sized* calculi being removed from the bladder, but I am not familiar with a case in which so many stones of considerable size were found in one bladder. Bangs and Hardaway say (page 417): "There are rarely more than five or six stones found, but cases have been reported in which three or four hundred small calculi have been met with." Keen, in 1893, removed four hundred and ninety-five very small calculi, the largest of which ranged twenty-six to thirty-two of the French catheter scale.

Before leaving this subject I wish to quote from Mr. Bruce Clark, who says (*British Medical Journal*, May 13, 1899): "There are no differential diagnostic symptoms which separate this condition from ordi-



nary cystitis. The difficulties in the way of diagnosis are enhanced by the fact that washing out of the bladder is quite sufficient, in many instances, to temporarily restore the urine to a healthy condition. In several cases the stones have been so thickly covered with mucous that they did not give an audible sound when struck with an exploring instrument. The fact that the presence of the stone was not known in half the cases operated upon and the difficulties that lie in the way of diagnosis, lead me to advise suprapubic cystotomy and exploration in all cases of cystitis that become chronic and rebellious to treatment."

If, now, we have learned by sad experience the necessity of adopting all of the accredited modes of research for stone in suspected cases—we have studied the history, have used the searcher and the cystoscope, and have failed to find evidence of stone in either the bladder or the urethra,

have we then fulfilled all the demands for comprehensive exploration that a chronic urinary case requires? What of the upper urinary tract? Or even of the lower? We have not excluded either of them. With respect to this question as it pertains to the lower tract, the following case teaches a forcible lesson; while it is not one strictly of calculus formation, it is so closely allied to it in its effects, if not in its nature, that it is related here:

Case 8.—Fr. L—d, grocer, aged forty-two years; was referred to me by the late Dr. T. F. Prewitt. The patient had pursued for sixteen years the endeavor to learn the cause of his urinary troubles, and had faithfully carried out many and various forms of treatment for their relief, but to no purpose. For all of this period of sixteen years he had suffered from pain in the bladder, perineum and urethra, severe burning in connection with urination; frequency of the act; recurrent chills and fever, evidently septic; and the urine was always heavily loaded with pus, and occasionally with blood.

At the time of our first conference, in July, 1900, while I did not discover the exact origin of the trouble, I advised what would have led to its discovery had it been adopted, that is, perineal section for exploration and drainage of the long-inflamed bladder. The patient declined any operative plan, desiring to be cured by medicine only.

We saw nothing further of him for three years, during which time he experienced the same disturbance to urination, and pain and recurrent fever and chills, and other indications of urinary sepsis.

In June, 1903, he came back again, under the advice of Dr. Prewitt, declaring that he was ready and willing to undergo any necessary form of treatment to get well of this harassing condition, which had troubled him for at least sixteen years.

The 22d of this month, after some preliminary treatment internally and locally with chloroform anesthesia, I incised the urethra through the perineum, running my finger into the prostate urethra, feeling the little sharp formations, which, on being taken out with the forceps and curette, were found to be the three little bony spiculæ that I show herewith. (Fig. 1, No. 25 M.) They were located in the substance of the prostate, on the posterior aspect of the urethra. They were thought at the time to be calcareous formations, and it was only afterwards, under careful examination, that their true nature was learned.

When he awakened from his anesthetic condition we learned that sixteen years previously he had met with some accident by which he received a severe contusion of the left hip. An abscess developed in the thigh, which was opened by Dr. Prewitt. There was a discharging sinus for a considerable length of time thereafter, and numerous pieces of bone emerged through the opening, which finally closed. A year after this some urinary symptoms made their appearance, and they continued until the time of the operation which was made in 1903. Evidently some of

the spiculæ had wandered from the injured bone, and fifteen years previously had migrated into the prostate and set up the irritation of the prostate body and urethra that had never discontinued until removed by our operation. Now, later, we learned that this did not embrace the whole of the trouble. While the various urinary symptoms disappeared on his recovery from the effects of the operation, the urine remained purulent, indicating that the infection had extended up into one or both kidneys, giving rise to suppuration there.

I wished to make investigation with reference to this point, but the patient felt so much improved that he did not wish to undergo further investigation, and we have never yet learned the extent of the involvement of the kidneys in the trouble; nevertheless, he has regained his general health to a very gratifying degree. He suffers no more from the frequency and urgency of urination, and pain and septic fevers, etc.

Upper Urinary Tract.—With reference to involvement of the upper urinary tract, it is necessary not only to determine the existence of a stone at some point, but it is equally as incumbent to locate it definitely—as to whether it is on the right or the left side; in the ureter or the pelvis of the kidney, of one side or the other. The number of stones and their size are also of importance as having a bearing on the measures determined on for their removal.

The methods for arriving at these results relate to a close study of the symptomatology and, more important still, physical examination of the patient, embracing analysis of the combined and the separated urines (from the respective kidneys), palpation, cystoscopy, ureter-catheterization and the use of x-ray photography.

While stones in the upper tract have certain symptoms and signs more or less characteristic and indicative of their presence, these should not always be expected; they are entirely lacking in some cases, and surprisingly eccentric in others. It is well established that a stone located in the kidney pelvis or the ureter may present its most urgent indication in the bladder, or even in the opposite kidney; and it is also a sad fact that many a stone is born to blush unseen and undiscovered in the kidney until disclosed on the post-mortem table—an embarrassing testimonial to the fallibility of man and his scientific methods. I believe, however, that the lack of application of these methods will explain this occurrence much oftener than their failure to do good service when applied. I have in mind a case in which I hold myself seriously at fault in having failed to make investigation (ureter-catheterization) of the upper tract, because I found what seemed to be enough trouble in the lower tract to account for the urinary symptoms presented.

Case 9.—A. L. G—r, aged fifty-five. First consultation June 20, 1904. Referred by Dr. Amberland.

This case was a very complicated one, and obscure in a number of respects. There was much discussion among neurologists who had been

consulted as to whether it was one of traumatic neurosis or of pure neurasthenia. The history of trouble dates from June, 1901.

While traveling through Kansas on a railroad train there was an accident in which he received a severe jolting while lodged between the seats of the car, and a severe contusion of the left hip. Nevertheless, he went to work shortly afterwards.

In the fall of the same year he first began to have trouble with the bladder, and consulted his physician, who interpreted it as being some form of prostatic irritation. In 1902 he experienced a general nervous collapse, which continued during that year and 1903. There was inability to control his thoughts, to continue his work; there were pains in various parts of his body, in the right hip and the left side, and also severe pain in the bladder. He suffered so much about that time that hypodermics of morphia were used a number of times. He tried the use of the catheter for awhile, but obtained no relief. He consulted physicians and surgeons in New Orleans and Milwaukee, and neurologists in St. Louis.

Later he became unable to empty the bladder, and gradually developed from twenty or more ounces of residual urine. The urine became very foul and dense, filled with pus and highly colored. There was excruciating sensitiveness of both urethra and bladder, and the slightest manipulation was borne with great difficulty. No physical obstruction in the urethra was encountered except slight impediment to the catheter just at the neck of the bladder. The lense cystoscope could not be used with any satisfaction, because of the active bleeding within the bladder and the clouding of the fluid medium. The operative air-cystoscope was, therefore, used when it was noticed that a diverticulum led from the posterior wall towards the fundus of the bladder, the opening of which was apparently the size of a quarter of a dollar, and the capacity of the sacculation sufficient to hold one or two ounces of fluid. The cystoscope could not be made to reach into the diverticulum, because of the dilated condition of the main cavity of the bladder.

Because of the patient's very bad condition generally, his extreme sensitiveness locally, and the bad condition of the bladder in connection with the sacculation of that organ, it was not considered advisable or necessary to catheterize the ureters, and no further cystoscopic examination was attempted. The conditions already mentioned were considered sufficient to account for the urinary symptoms, so that it was considered inadvisable to pass the catheters into the ureters.

The patient was treated with bladder washes and dilatations of the neck of the bladder, notwithstanding which he made no improvement. Conferences were had with other physicians, who were unable to shed any light on the case. No complaint directly referable to the kidneys was made at any time. There was gradually increasing debility, recurrent fever, occasional chills, loss of weight and appetite.

Post mortem examination showed sacculatation of the bladder as above detailed; chronic cystitis, but in addition thereto, something that had not been discovered before, namely, a stone in the substance of the left kidney, with consequent pyelo-nephritis and dilatation of the right ureter and kidney pelvis, probably resultant from the backward pressure from the contracted condition of the neck of the bladder.

The error in this case was on the side of conservatism. We should have examined more than we did; we should have introduced the catheters up the ureters, when we would have obtained purulent urine from both sides, indicating that trouble was located higher up than just the lower urinary tract. We could not have touched the stone in this case with the catheter, but a sufficient clue to its presence would have been given for the use of the x-ray, by which it should have been disclosed.

A more fortunate case than the preceding one is the following one of stone in the kidney:

Case 10.—C. B. H.—n; claim agent; American; married; aged thirty-four years.

The diagnosis of the case is chronic prostatic-vesiculitis and right calculous pyelitis.

This patient consulted a number of physicians and underwent a number of different kinds of treatment before being referred to me, March 31, 1904, by my friend, Dr. Lindenberger, of French Lick Springs. His symptoms began about one year previously, shown by irritation and frequency of urination, and bearing down pain in the region of the perineum and neck of the bladder. The symptoms were much more pronounced in the daytime than at night.

He made a trip to French Lick Springs shortly after the beginning of the trouble, which seemed to give him complete relief, but his symptoms began again three months ago. Since that time he has noticed much sediment in the urine, and often it has appeared to contain blood. A physical examination disclosed some swelling and acute tenderness of the prostate and seminal vesicles, which, therefore, first received our attention.

Treatment by means of prostatic massage, the hot-water siphon and internal antiseptics, diminished the inflammation that existed in the prostate and seminal vesicles.

Nevertheless there was considerable clouding and always blood corpuscles in the urine, the persistence of which led us to advise ureter catheterism in order to get the testimony of the urine coming direct from the kidneys. Double ureter catheterism was carried out on April 25, 1904. The urine from the left kidney was clear and free from abnormal elements, excepting a few red blood cells. These evidently came from the contact of the catheter. The urine from the right kidney showed a large amount of pus as well as blood corpuscles.

From the history of the case, it was suspected that the inflammation

in the right kidney thus shown, was due to a possible calculus. Therefore, Dr. Brokaw was requested to take an x-ray photograph of the two kidneys. The result was a shadow shown in the right kidney, indicating calcareous formation in that organ. On June 22d, under chloroform anesthesia, administered by Dr. Crandall at the Baptist Sanitarium, the right kidney was opened through the lumbar region by an oblique incision. After some difficulty, adhesions surrounding the kidney were severed and the organ brought into view. It was incised on the convex surface. A finger pushed down into the pelvis at once detected an angular stone of irregular outline, about as large as a hazel nut. This was removed and cleaned. A facet on one side indicated the existence of an additional stone which was also removed, and which was considerably smaller than the original one. (Fig. I, Nos. 33 and 35.) A rubber drainage tube was left in the kidney pelvis. The external wound was partly closed by silk worm gut sutures. The patient convalesced satisfactorily, and recovered from the effects of the operation without undue delay or difficulty. Later, it was found that there was some tendency to persistence of the inflammation in the right pelvis, but this was gradually overcome by repeated ureter catheterizations, and washing of the kidney pelvis with argyrol solution.

The patient has recovered his general health; he has gained forty pounds in weight, and carries on his work with renewed energy and satisfaction.

Cases in which kidney stone is diagnosed and sought for by exploratory operation, yet not found on opening the kidney, are numerous, indeed. Jacobson, of Guy's Hospital, reported twenty-five such cases—in which the symptoms of renal stone were present, lumbar nephrotomy was done and no stone found, the urinary symptoms having then been attributed to uric acid crisis and other affections. Henry Morris reports twenty-eight similar cases, in eleven of which nothing was found to account for the symptoms that had been interpreted as indicative of calculus.

It must be observed, however, that these cases were reported before the present era of ureter-catheterization and x-ray work. I believe that with these measures at hand, no surgeon will again report such a large series of such cases.

Without going into an analysis of all the signs of stone in the upper urinary tract, it may be mentioned that there are certain ones on which reliance may be placed; these are pain, hematuria and the evidence afforded by use of the ureter catheter and the x-ray.

Hematuria.—Hematuria, either in macroscopical or microscopical quantities, is practically always present where stone is present at some point in the urinary tract. I do not remember to have ever seen an exception to this rule. I have seen cases in which the urine looked, to the naked eye, quite clear, and without closer investigation it might readily

have been presumed that it contained no blood; but sedimentation and microscopical search have always demonstrated red blood cells in definite numbers. While the finding of hematuria does not necessarily lead to the diagnosis of stone, it serves a very useful purpose as confirmatory evidence, indicating, for instance, that the trouble has to do with the urinary tract rather than the liver or appendix; the appropriate examination then being carried out, the differential diagnosis should be determined.

Pyuria.—I have been on the lookout for a number of years to learn whether it were possible for a stone to exist in the kidney or ureter without the production of pus in the urine; in other words, whether pyuria is not equally as constant a factor as hematuria. I have also seen cases of urinary stone in which the urine was described as "perfectly clear," but in addition to blood corpuscles, many pus corpuscles were contained therein. While I can conceive it possible for stone to exist at some point, the channel becoming blocked or plugged below that point and by preventing drainage, preventing the passage into the lower tract of the pus or blood corpuscles; still I believe this is more or less a theoretical proposition, occurring practically never. A stone in a ureter does not permanently and completely block the passage of urine past it; while the stone itself may not be able to pass down, the ureter dilates sufficiently in addition to allow the urine to get through. I show here a section of ureter containing such a stone, from a case of multiple lithiasis, in whom I observed during his life, with the aid of the cystoscope, the urine to issue in the normal interrupted jets from each ureter opening.

I have therefore concluded, in my own mind, that both pus and blood are practically constant factors in this condition; although various symptoms of calculus might be present in a given case, I should hesitate to diagnose calculus without them.

Pain.—While the third of the triumvirate of characteristic indications of stone in the upper urinary tract may not be as faithful in its attendance on such cases, it usually makes up for such shortcomings by the vigor and aggressiveness of its attacks when it is present. Stone lodged in the kidney tissue does not cause as severe pain as when it is lodged in the pelvis or ureter, where it has room to roll around, subject to the movements of the body.

Interrupted renal or ureteral *colic* usually indicates that the stone has entered the ureter, or is engaged in its entrance, trying to pass down that narrow channel to the outer world. Whether it is very minute or of more considerable dimensions, does not determine the amount of pain experienced; the muscular ureter contracts down on it spasmodically, irritating the nerve ends and also causing backward pressure of urine behind it, to a certain degree. If the stone is small enough to get by the narrow isthmuses of the ureter, or the ureter relaxes sufficiently to

allow the crowding urine to push it long, possibly it may pass into the bladder—and the victim is fortunate. It is, however, well established that certain kidneys have been entirely destroyed from the prolonged retention of such small calculi, and in some instances without causing enough pain to attract attention to the kidney as the source of trouble. Dr. Caldwell, in *Railway Surgeon* for July 14, 1896, relates the very interesting history of his own case in which, although he evidently carried the stone in one kidney for upwards of sixty years, the pain occasioned was very erratic and served to delude the many diagnosticians of both this and the old country who were consulted during this long period. In this case the pain was located in the sacro iliac region; and exercise or horseback riding did not seem to increase its severity, contrary to the usual rule. The calculus was finally removed in 1895, by Dr. Murphy of Chicago.

This case and these facts about these several symptoms and signs serve to point the moral that I think is most useful and impressive in the study of these conditions—namely, that it is not the symptoms and general history on which we may expect to place reliance for diagnosis, but the *physical examination*. If, instead of analyzing symptoms for sixty years, in Dr. Caldwell's case, while he was suffering the torments that he so forcibly describes, the ureters had been catheterized and the x-ray applied, it is probable that the operation that finally gave him relief would have been advanced a number of years.

The proper and most direct mode of investigating a case suspected of having stone in the upper urinary tract, it appears to me, is (a) to study the history given; (b) learn anything from palpation that may be discovered; (c) analyze the mixed urine taken from the bladder; (d) introduce the cystoscope and observe the interior of the bladder (especially the appearance of the two ureter openings); (e) catheterize the two ureters, with the double object of noting an obstruction at any point in the channels, and of draining and analyzing the two urines as they come direct from each kidney; (f) if pus or a considerable quantity of blood show in either urine, have an x-ray taken, embracing both kidneys, ureters and the bladder. It must be remembered that a catheter passed up the ureter to the kidney, causes the appearance, usually, of more or less blood cells in the urine of that side merely from its mechanical impact; but it is usually not difficult to estimate the bearing this has on the individual case—by comparing the quantity of blood seen before manipulation with that incident to it. On this account, as well as for other reasons, it is always highly desirable to investigate the urine for blood and pus before any instrumentation has been carried out.

If calculus be impacted at some point in the ureter, the catheter will meet with obstruction at that point, and if, in addition, we find purulent and bloody urine coming from that side (and not from the other), the presumptive evidence of ureter stone is very strong. If the case be a

female, and we are using the wide-open cystoscope, we may employ the wax-tipped ureter-catheter, as advised by Dr. Kelly, and look for the scratch marks on the wax that are supposed to register the contact with the calculus. But, unfortunately, I believe the usefulness of this procedure is confined to the female sex and the short, open cystoscope, for when we try to pass the waxed catheter through the long channel of a male, cystoscope, of whatever design, its liability to be scratched or rubbed is so great as to make the test unreliable, to say the least.

The Segregator,—If properly and successfully used, the segregator is capable of draining the two urines independently from the two kidneys, and show pus or blood in one or other of the two urines; but it is not capable of giving the contact or obstructive indications of the stone that the ureter-catheter is. It is quite as liable to develop blood corpuscles in the urine from its mechanical contact, and I confess I have never been able to satisfy myself that complete segregation was attained, with no possibility of mixing the two sides. But when you have a ureter-catheter passed to the kidney pelvis of one side, and another to the pelvis of the other side, you *know* there is no chance of contamination between the two, even should the patient cough or strain to urinate, etc. As to a comparison between the painfulness of the two procedures, the choice is much in favor of the catheterization. As soon as the catheters are inserted the cystoscope is withdrawn, leaving the catheters to drain for a half hour or so, while in order to drain an equal quantity of urine with the segregator the whole metal instrument must be left in during that time, causing much complaint on the part of the patient.

I have asked my friend, Dr. R. D. Carman, who has had large experience in such work, to give me his estimate as to the present status of the Roentgen-ray examination for diagnosis, and he deems the advantages of the method to be as follows:

1. The examination is painless, no general or local anesthesia being necessary with resultant depression, etc.
2. No danger from traumatism or infection; the danger from burn is practically nil.
3. It gives the exact location of the stone, and, especially important, the number of stones present.
4. There is no exploratory operation necessary for diagnosis.
5. The negative diagnosis is as accurate as the positive, except in very stout patients.
6. It differentiates calculous nephritis from other conditions in neighboring organs.

The percentage of error in all cases skiagraphed, of the great number of operators, has been less than 3 per cent.; and in the majority of instances where there were erroneous negative diagnosis, the calculi were so small that they passed without surgical interference.

CLINICAL REPORT.

THE CURE OF CARCINOMA BY MEANS OF THE X-RAYS.*

By DR. HEINZ WOHLGEMUTH, Berlin, Germany.

While there is very little doubt at the present day concerning the fact that superficial caneroids of the skin can be cured by the use of the x-rays, we have, on the other hand, to record a marked dissention of opinion regarding the curative effect of these rays upon deep-seated cancers. If we take the carcinoma of the mamma as an example, we find reports of cases positively cured by Skiuner, Perthes, Daniel, W. I. Morton, Barney and others. In marked contrast with the experience of these authors, Lassar asserted here today that the Roentgen rays exert a distinct effect only to a depth of one-half of a centimeter, so that an ulcerated deep cancer may apparently heal on its surface, while, however, the rest of the tumor preserves its malignant character. It would seem that Lassar's view is confirmed by the microscopic sections demonstrated here by Unger. I beg, however, to dissent. The one specimen of Unger is taken from a cancer of the breast which has been x-rayed ten times. It is true that only to the depth of five millimeters the characteristic cancerous growth had disappeared and was transformed into typical scar tissue. But nothing more could be expected from only ten treatments. Unger failed to state how long each radiation lasted, what tube he used, whether hard or soft, at what distance the tube was held from the growth and a few other points which are of paramount importance in the consideration of the general qualification of x-rays in the treatment of malignant new growths.

It is my belief that actual demonstrations are more likely than theoretical argumentations to bring us nearer to the satisfactory solution of this important question, and I, therefore, take pleasure in presenting to you a patient who demonstrates beyond the possibility of doubt the fact that x-rays do have a pronounced curative effect upon carcinoma of the breast to the depth of three to four centimeters.

This patient is seventy-six years old. Seven years ago she first observed a nodule in her left breast, which within the next four years gradually increased to the size of a hen's egg. At that time it had reached the skin and formed a suppurating sore. A surgeon advised amputation of the breast, which was refused by the patient. She applied a boric-acid-zinc-paste to the ulcer at the time when she first came under my care in November, 1904. At that time she looked decidedly cachectic, complained of very acute pain in the left mamma which prevented her

* Paper read before the Roentgen Congress in Berlin, April, 1905.

sleeping at night, and caused her to moan, and at times to yell out loud while she was awake. Just above the left mammilla a tumor was found about the size of an apple, hard, movable against the underlying ribs, with an ulcerated surface measuring 6.5 cm. The sore bled easily, was covered with a yellowish-green secretion, no reddening of the surrounding tissue. In the left axilla a lymph gland could be felt, size of hazelnut.

Protecting the surrounding tissue, the tumor was exposed to the x-rays three times a week, five minutes each time. A hard tube was used in a distance of 25-30 cms., motor-quicksilver current interrupter. The following observations have been recorded: Most pronounced was the immediate effect of the radiation upon the pain. It gradually became less and disappeared after four weeks. From one treatment to the next the progress of the epitheliasation could be observed, which started from the edges of the sore and advanced centripetally. The ulcer became smaller and flatter by a reduction in the size of the tumor. After fifty-two applications of the rays, sore and tumor had completely disappeared and in its place is found a soft, flat scar. The enlarged lymph gland had disappeared about two and one-half months after the beginning of the treatment.

This tumor has not disintegrated under the influence of the rays as I have seen it do in a case of cancer of the uterus; it melted away; it has been resorbed like an acute inflammatory swelling. This particular form of restitution *ad integrum*, in my belief, is due to the careful dosage of the rays, a visible reaction of the skin having always been avoided. Once when the skin became reddened and patient complained of pain, I discontinued the treatment for one week.

The condition of the breast of this patient is today an ideal one; her general condition very satisfactory. Of course, I do not make any claims for a permanent cure. Too short a time has elapsed, and there is still a small gland above the left clavicle, which I shall remove for microscopic examination. I wish to repeat that I have presented this patient simply for the purpose of demonstrating that the x-rays can be used successfully even for deep-seated cancers if the proper technic is applied.

No answer can be given to the question as to how the rays affect the carcinoma, whether they inhibit the growth of epithelial cells or destroy them, or under proper dosage are capable of rendering the normal stroma cells more effective in combatting the malignant growth. Of course, if the radiation is pushed until the tissue becomes necrotic, and the surrounding skin shows the reactive reddening, the *modus operandi* is clear. Several observations seem to indicate that cancerous tissue shows less resistance towards the influence of Roentgen rays than normal tissue, so that the latter will exhibit but a slight reddening, while the former is thrown off in large necrotic pieces. This effect can, however, be obviated if, as I have done in this case, the rays are not permitted to produce

any noticeable irritation. It seems reasonable to assume that this mode of procedure lends valuable assistance to the leucocytes in their action of defense.

The return of the enlarged gland to its normal size is not so remarkable; this phenomenon has been repeatedly described. Of course, I am not in a position to offer you any proof whether the enlargement was due to a carcinomatous or a simple inflammatory infiltration.

ATRESIA OF THE VAGINA.*

BY GEORGE GELLHORN, M. D., of St. Louis.

Since modern obstetrical teaching has become more widely distributed, serious traumatism acquired during delivery have grown less numerous. Increased skill in applying forceps to the parturient woman prevents the fetal head from being impacted unduly long within a slightly contracted pelvis, and in consequence we no longer see frequently those extensive injuries to the soft parts caused by prolonged pressure and resulting in the formation of fistulae which, in the days of Marion Sims, were of so common occurrence.

I trust, therefore, that the following demonstration will present to you some features of interest. We have to deal with a patient in whom an excessive pressure of the child's head, augmented, perhaps, by some undefined manipulation on the part of the physician, caused necrosis of the vaginal walls. As a result the sloughing and subsequent cicatrization produced a complete atresia of the vagina. The patient in question is twenty-eight years of age. She has been married four years. Her only confinement took place two years ago. This confinement lasted two days, no instruments being used; but, to quote her words, the doctor "tore" her "with his fingers." The child was stillborn. Patient remained in bed three weeks and experienced no discomfort save some "straining" in urination or defecation. Intercourse was painful ever since confinement, and became entirely impossible during the last year. Menstruation, as the patient claims, has been more or less regular since delivery, and has shown no appreciable difference from its original type. For the last nine weeks, however, she has had no menstruation. At times there has been a slight pain in the lower abdomen, on the right side, and also some backache. Furthermore, she had incontinence of flatus and liquid feces.

The patient is of about medium size. Muscles and panniculus adiposus are moderately well developed. Upon examination the vulva was

* Demonstration of the patient at the meeting of the Medical Society of City Hospital Alumni, September 21, 1905.

found to be very small, as you will see in the circulating photographs, for which I am greatly indebted to the kindness of Dr. H. P. Wells. The urethral orifice is normal. On the right side of it, and a little below, there is a small abrasion of the mucosa, but without infiltration. Beneath the meatus urinarius the entrance to the vagina is closed by a dense cicatricial membrane, which is situated immediately behind the normal site of the hymen, the latter, however, being absent. At the base of this membrane, situated in the vestibule, there is an oblong opening, the largest diameter of which is about one-third of an inch. A sound passes through this opening into the rectum, and, when given the proper curve, and assisted by a finger introduced into the rectum, glides behind the membrane into a short and spacious vagina. In other words, there is a large rectal fistula which, by the occluding membrane from above, as if by a gate, is incompletely divided into a recto-vaginal and recto-vestibular fistula. At the bottom of this fistula a valve-like fold of the rectal mucosa can be seen and easily be pushed downward. The menstrual blood then, if we accept the statement of the patient, must have passed from the uterus through the recto-vaginal fistula into the rectum and thence, guided by the above mentioned fold, reappeared through the vestibular opening of the fistula, at the foot of the occluding wall.

The rest of the genital organs were but little affected. Upon recto-abdominal examination the uterus was found in ante flexion, and of normal size and mobility. Both appendages were sensitive to touch; the ovaries were rather low but not enlarged, nor was there an enlargement of the tubes noticeable.

The operation took place August 12, 1905—*i. e.*, about six weeks ago. The occluding membrane was incised and dissected out of the surrounding normal tissues. In doing so, the area of cicatrization was found to be much larger than at first suspected. A broad ring of scar tissue took the place of the vaginal lumen and extended deep into the para-vaginal tissue and close to the bone. The vagina behind the cicatricial area was about one and one-half inches in length and lined with a normal, but very pale mucosa. The cervix pointed forward. After the dissection of the scar tissue, which caused copious bleeding, the edges of the rectal fistula were denuded and the opening, measuring about the size of a dollar, when fully exposed, was closed with two layers of continuous catgut suture. Then the annular wound resulting from the excision of the scar tissue, was covered with interrupted silk sutures. In order to reduce the excessive tension, flaps were formed from the labia and turned inward after extensive episiotomy incisions had been made on either side to gain sufficient room in the exceedingly narrow vagina. The operation was, of necessity, a very tedious one owing to the limited space in which to operate, and to the time required for the numerous sutures.

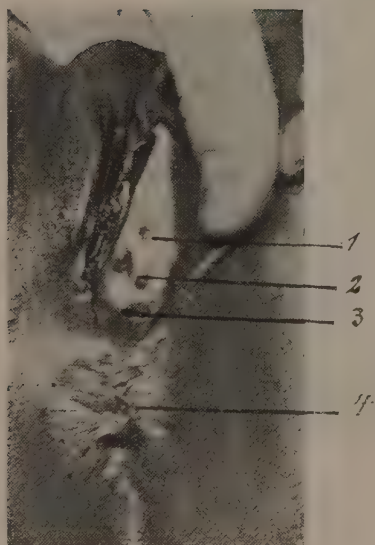


FIG. I.

1. Urethral orifice.
2. Occluding septum.
3. Rectal fistula.
4. Anus.

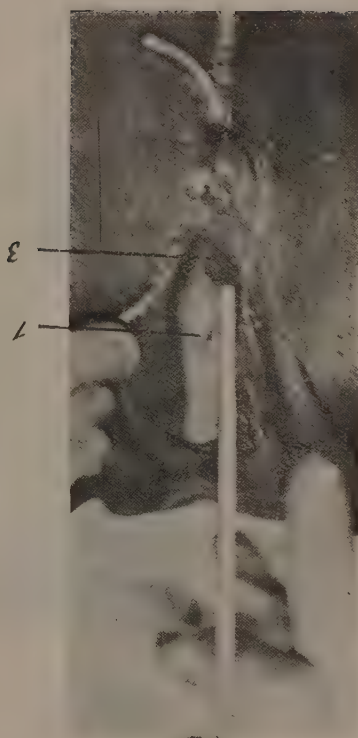


FIG. II.

1. Urethral orifice.
- A sound passes through the opening (3) into the rectum.

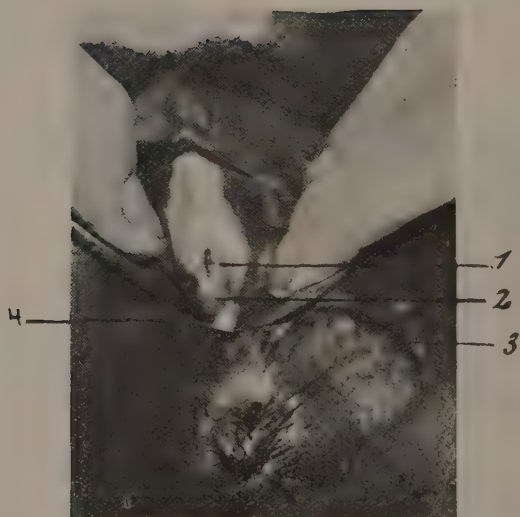


FIG. III.

Condition six weeks after operation. 1. Urethral orifice. Below the urethral swelling (2), the normally wide entrance of the vagina is seen. At 3 and 4, linear scars of the episiotomy incisions; between the latter a normal frenulum.

After operation, owing to the invagination of the labia, the vagina presented a peculiar appearance, the lower two-thirds black, the upper end pale white.

Convalescence was undisturbed. Primary union took place, and beginning on the tenth day after operation, gradually increased stretching of the narrow vagina was made with Hegar's dilators to a size a little over an inch in diameter, for several hours.

In the meantime, the retraction of the flaps on the vaginal walls has brought the line of union nearer the vaginal orifice, and the resulting shortening of the vaginal walls has produced a retroversion. Unfortunately, patient is anxious to leave for her home in Arkansas and has not consented to another operation.

Upon examination of the patient, you will find the vagina to be of normal width. The rectal fistula has completely disappeared, and the operation has left no trace save the linear scars of the episiotomy incisions.

The salient points of this case are:

1. The mode of origin of atresia.
2. The peculiar formation of occlusion and fistula.
3. The tortuous path of the escaping menstrual blood.
4. The successful elimination of all scar tissue and the restoration of the parts to their normal condition.

EDITORIAL COMMENT.

THE PATHOLOGIC EXAMINATION OF A CADAVER 113 YEARS OLD.

An interesting feature of the delivery to the United States of John Paul Jones' body has not received the general attention it deserves. In a letter to the *Deutsche Medizinische Wochenschrift*, Dr. Schober, of Paris, describes the identification of the admiral's remains. John Paul Jones was buried in 1792, at Paris, in the cemetery for foreign Protestants. When the Hotel de Ville burned, in 1871, the ground plan was destroyed, so that the location of the grave could no longer be ascertained. As the cemetery had long since been built over, it was necessary to burrow under the foundations of an entire row of houses, which greatly added to the difficulty of the undertaking. The only guide that could be offered the searchers was the knowledge that the admiral had been buried in a leaden casket, a rare honor in those days. Several such caskets were found, one of which contained a body corresponding in general to the size and build of our hero. Two Parisian physicians, Capitan and Papillault, undertook the difficult task of identifying the body. They had as their data certain more or less well-founded traditions and a cast of Houdon's bust of Jones. They found the mummified body to be that of a man, forty-five years old, with brown hair that was beginning to turn gray, and about five feet five inches high, all of which corresponded to the tradition of John Paul Jones' appearance, as did also the general appearance of the face. Anthropometric measurements were then made, which corresponded strikingly with those obtained from Houdon's bust, the two never being more than 2 mm. apart. Thus, in the body, the distances from the edge of the hair to the subnasal point and from there to the chin were 12.9 and 7.4 cm.; in the bust these measurements were 12.7 and 7.5 cm. The other measurements coincided even more precisely. Finally, the services of pathology were enlisted in the task. It was known that the admiral had suffered during his last days from a dropsy that had begun in his feet and had spread upwards, involving finally the entire abdomen. Moreover, he was known to have died of a pulmonary affection involving chiefly the left lung. Now, it happened that before being sealed up in the leaden casket the body had been treated with alcohol, so that when it was recovered the viscera were still soft and fairly well preserved, being only a little shrunken and browned. Microscopic sections of the organs could be made almost as from a fresh cadaver. This task was entrusted to Prof. Cornil, of the Parisian medical faculty. He was able to report the presence of a diffuse glomerulitis in the kidneys, and made the diagnosis, advanced chronic interstitial nephritis. The liver parenchyma was nor-

mal. Macroscopically as well as microscopically areas of broncho-pneumonia could be made out in the left lung. The anamnesis and the autopsy report thus corresponded perfectly, although they were separated by more than a century. A positive identification of the body could accordingly be made.

A MEDICAL PHASE OF THE LABOR PROBLEM.

The modern tendency of therapeutics towards prophylaxis is so well recognized that it is no longer a question in what direction the great advance in the future will lie. For the greater facilitating of this advance it is essential, not only to investigate the ætiological factors directly concerned in disease, but likewise those that may be termed, for the present at least, the indirect factors.

The influence of trades and professions upon the causation and progress of disease has long been recognized, and there has grown up an important, though not a very extensive literature dealing with the subject. As a rule, however, studies in this direction have been limited to the consideration of direct agencies, such as hygienic conditions, hours, various toxic substances used in the making of articles, etc.

A closer consideration of the whole question reveals, however, a number of other agencies belonging to the above category which merit attention and which has received practically none. These factors have to do with the personal side of labor questions and find their place, or should do so, in the discussion of the problems which are considered strictly within the limits of the economics of the labor question itself.

It is fairly well recognized that the stress of modern business conditions, from the capitalistic point of view, carries with it certain causative agencies which are directly of importance in the production of functional diseases of various sorts, and indirectly produce a favorable soil for the development of other diseases towards which a more or less generally recognized tendency may exist. For example, arterio-sclerosis and nephritis may be actively favored by the worry and excitement of business competition. It is not so well appreciated, however, that the factory hand meets in his work some of the same kind of stress, translated for him into similar causative agencies for the production of the same kind of morbid states. The economic problem concerning the eternal struggle between labor and capital has its effect upon the laborer also, and not merely in questions of wage, hours and tenure of employment.

To note only one phase of this interesting subject, it might be asserted without much need of supportive testimony that there is a distinctly medical side to such a question, for instance, as piece work problem in factories.

It has been observed that the piece worker more easily develops functional nervous diseases of various kinds than the week worker or the

worker whose output is limited by the measure of the inferior workman. The reason is easily seen. The premium set upon the increase in the productive power of an individual leads to the using up of the reserve power which should be the emergency store to be saved for other things.

There follows in workers of this type the same train of symptoms exactly which will take place in the case of the employer under the same conditions. From a medical point of view which, in this instance is also the economic point of view, the trade union is upon safe ground in its claim that the producing capacity of any individual should not be measured by the most capable, but by the average worker, if not by the least capable. In this instance the independence of the laborer to a choice of other work or other conditions should not be taken for granted as an opposing argument because in the sense that it exists for his employer it has no place in his life as a workman. In the case of a factory hand, and it is in his case that the question here being considered finds its chief illustration, there is given practically no choice without its use being costly.

While it is readily admitted that in questions of this sort the medical point of view at present has practically no place, it will be as readily admitted that theoretically at any rate it might have. Acquaintance with this side of the question might be the means of a better appreciation of the problem, and certainly it is of value to the physician in attempting to understand the origin of certain vague sets of symptoms seen among factory hands.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

The Pathogenesis of Chronic Ulcer of the Stomach.—BLOCK (*Deutscher Medicinische Wochenschrift*, No. 32, 1905) attributes the fact that round ulcer of the stomach is found most frequently on the lesser curvature and pylorus to anatomical relations, which he has observed in stomachs fixed and examined immediately after death. These portions of the stomach have the same appearance in the dilated as in the contracted state, while the muscles of the other portion contract firmly and thus protect its mucous membrane from the action of the gastric juice. In the muscles of the new-born, dying from gastroenteritis, are found ulcers which had originated from hemorrhagic erosions. The epithelium seems to be seriously damaged through hemorrhages to the mucous membrane. He does not believe that bacteria play any role in the production of ulcer.

Ulcer and Cancer of the Stomach; Their Relationship.—GRAHAM (*Boston Medical and Surgical Journal*, August 31, 1905) reviews in this article the statistics presented by various authorities bearing on the relationship between ulcer and carcinoma. The results of this review, together with his own clinical experience, lead to the following conclusions: The very great majority of ulcers of the stomach are located at the pyloric end. The immediate pylorus comes first, the lesser curvature second. A small per cent. is found elsewhere, few at the cardia.

The great per cent. of cancers of the stomach is found at the pylorus and lesser curvature (pyloric end); that is, the same locations find the greatest number of each.

Quite a large per cent. (50 to 60) of patients suffering from carcinoma give three or more years of a pre-cancerous history. A growing per cent. of cancer cases are found with short histories and ulcer demonstrated as the earlier lesions. A certain per cent., if small, of short ulcer histories leading to acute pyloric obstruction, where the ulcer must have been present for quite a period, and latent. Ulcers may be present for an indefinite period and no symptoms follow until obstruction, perforation and hemorrhages appear, if the acidity is low or absent and the ulcer locates itself along the lesser curvature, or near the pylorus. Cancers may develop under the same gastric conditions and only manifest themselves when obstruction or systemic poisoning makes itself felt.

What is most needed is better and earlier diagnosis in both ulcer and cancer of the stomach, so that non-medical cases may be reached by the surgeon when most may be promised.

A Study of the Mesenteric Glands in Their Relations to Tuberculosis.—ROSENBERGER (*American Journal of Medical Sciences*, July, 1905) investigated the mesenteric glands in seventy cases. Of these, forty-nine were tuberculous and twenty-one non-tuberculous.

These glands were normal in seven, enlarged in twenty two, and tuberculous in twenty of the forty-nine cases in the tuberculous group. Of the twenty-five cases in which there were both pulmonary and intestinal lesions, 60 per cent. of the glands were tuberculous; of the eighteen cases in which there were pulmonary but no intestinal lesions, about 28 per cent. of the glands were tuberculous.

In the non-tuberculous group, including twenty-one cases, it was impossible to demonstrate any gross lesions. These died from a variety of causes, among which were typhoid fever, dysentery, and other diseases liable to cause enlargement of the mesenteric glands. The examination for tubercle bacilli gave negative results in all of these cases. However, guinea pigs were inoculated with bouillon in which glands from each case were macerated. Six of the pigs showed distinct tuberculous lesions. In other words, in 40 per cent. of the cases the mesenteric glands of the non-tuberculous group were shown to contain matter capable of producing tuberculous lesions in guinea pigs.

The author concludes that in all cases of active tuberculosis and in almost all cases of inactive tuberculosis, the mesenteric glands are tuberculously infective; that the mesenteric glands in these cases may or may not show gross evidence of tuberculosis or tubercle bacilli in spreads, the result is the same as far as the qualitative production of tuberculosis is concerned; that the mesenteric glands, in a certain percentage of cases showing no tuberculous lesions in any part of the body, are tuberculously infective. In the present study the percentage was about 40; that the tuberculous infectivity of the mesenteric glands is probably shared by the other groups of lymph nodes throughout the body.

A Study of Cardiac Dilatation.—SELIG (*Wiener Klinische Wochenschrift*, No. 32, 1905) finds that those cases of dilatation of the heart which may be referred to as congestive dilatation (*Stauungs dilatation*), often possess relatively good functioning power. Many football players have albumin and casts in the urine after severe playing for an hour or two, and this the author considers the manifestation of beginning cardiac insufficiency. The best way to judge the state of the heart's action is from the general impression gained after severe physical exertion on the part of the patient, and not altogether from the pulse rate or changes in blood pressure.

SURGERY.

IN CHARGE OF
WILLARD BARTLETT, M. D.

The Results of Interscapulo-Thoracic Amputation for Malignant Tumors.—JEANDRAU and RICHE (*Revue de Chir.* No. 8, 1905).—In considering the results of this formidable operation the authors divide these into two classes. In the first class they consider the immediate dangers of the procedure, and in the second the permanent results as regards the ultimate freedom from recurrence. In order to get at material for their paper they addressed letters to sixty of the leading surgeons of France, England, Germany, America and Switzerland. From their answers they have succeeded in tabulating some very interesting facts based upon a study of 188 cases. As extensive as such an operation is, it cannot always be considered radical, for the reason that such patients frequently refuse early treatment which is so mutilating, and wait until the tumor has invaded the chest wall or the lymphatic structures within the thorax. Almost always, however, there is a sufficient temporary benefit to repay one for the operation, and, as will be later shown, there are many instances in which permanent cure is proven by many years free from recurrence. In these 188 such cases the immediate mortality was 11.1 per cent. It is interesting to compare the mortality previous to 1887 with that which has been experienced since that time. During the earlier period thirty-five cases gave a mortality of over twenty-nine per cent., whereas 153 of the later cases gave a mortality of a little less than eight per cent. This must, of course, be due in a great measure to the introduction of antiseptics and, more laterally, of asepsis. Of the last 188 cases the microscopic examination verified the findings in 125. Of these 125, ten patients died as a result of the operation, and ten more could not be followed later. Of the remaining 105, sixty-one lived only twenty-one months, twenty-two were still alive five years and two months after the operation, and the remaining twenty-two lived four years. Quite a number of patients have lived an astonishingly long time after the operation free from recurrence. It is stated that some survived ten, some thirteen, some fifteen, one sixteen and one twenty-six years after the procedure. This, of course, is sufficient to more than enable an author to speak of a radical cure. This article contains a very extensive statistical review of all of the cases reported by the sixty surgeons in question, and will more than repay one for a careful perusal of the same.

Ligation of the Internal Jugular Vein.—DANGEL (*Beit. f. Klin. Chir.*, Band 46, Heft 2).—In olden times the ligation of large veins was regarded as a very serious matter, because the surgeon had to fear the infection and purulent liquefaction of a thrombus, embolism of the pulmonary artery, pyemia and secondary hemorrhage. Of course, now this is all different, and the chief danger which we have to combat is that of circulatory disturbance. This latter question comes especially into consideration when we have to do with the brain, since the anastomoses

between its veins are scarcely able to take care of any additional work imposed upon them. An interesting case in this connection is reported from the clinic of Professor Garre. The patient was operated upon for malignant disease of the face and neck, the procedure necessitating the ligation of both internal jugular veins. There was a very slight amount of circulatory disturbance, strange as this may seem, though the patient did die four weeks later of erysipelas. At the autopsy it was shown that the vertebral veins had to a great extent taken the place of the ligated jugulars and that collaterals had formed in the vicinity of the foramen magnum. The fact that such a ligation could be borne by the patient is probably explained by the pathological finding at the operation. It is stated that the tumor had considerably constricted both veins, hence there was probably already some development of the collaterals before the ligation. It is well known that very many patients have one of these veins ligated without any ill effect, still it must be kept in mind that no less than three cases are found in the literature in which such an operation has produced disturbance enough in the brain to cause death. The author states that his case is the only one of its exact kind to be found in surgical literature.

A Remarkable Collection of Foreign Bodies Removed from the Stomach.—HAROLD H. R. MCLEOD (*The London Practitioner*, September, 1905).—When first seen the patient had a painful swelling a little above and to the left of the umbilicus. This was apparently of an inflammatory nature and there was fever. The tumor increased in size day by day; fluctuation appeared, and hence an exploration was undertaken. It is interesting to note that the patient had confessed to swallowing foreign substances with suicidal intent, consequently the surgeon's mind was attracted to the most probable cause of the new formation. After opening the abscess it was found to communicate directly with the interior of the stomach; a dressing forcep was introduced directly into the opening and a vast collection of small articles removed through it. There were found hairpins, safety pins, nails, screws, tacks, pins, pieces of glass and chalk, coins and other articles too numerous to mention. The stomach walls were found to be very thick and vascular and the site of the perforation shut off from the general cavity by adhesions. The gastric fistula could not be controlled and the patient died from leakage a few weeks later. It is interesting to note that the patient went about her ordinary household duties and ate her usual quantity of food during all the weeks that she was swallowing these foreign substances.

Resection of the Superior Cervical Sympathetic Ganglion in Trifacial Neuralgia.—DELBET (*Bullet. et Mem. de la Soc. de Chir.*, Tome XXXI., No. 37).—The author opens his article by remarking that this operation is worthy much more serious consideration than he had formerly given it. He concludes thus after trying it on three cases, whereas formerly he was very skeptical and scoffed at the possibility of its being efficacious. With the exception of the pneumogastric there is no nerve more closely connected with the sympathetic than is the trigeminus. Many of these connections are necessarily separated when the superior ganglion is removed, although the author is unable to explain

just why this benefits conditions depending upon the integrity of the fifth nerve. In the first of Delbet's three cases, he had formerly done an incomplete removal of the Gasserian ganglion. After this the patient had remained well about eight months, when the disease recurred and removal of the sympathetic was then attempted. After the second operation it was two weeks before relief was noticed, and then the patient grew rapidly better until he was entirely free from pain, and has remained so, with slight intermissions, for more than three years. Occasionally he has pain for a few days, but it is not extremely severe. The second and third cases are too recent to prove anything permanently, but it must be stated that so far, that is, during the few months since the operation was performed, the patients have been very much better than prior to the undertaking. Still, it is to be noted that now and then mild attacks of pain are to be noted by them. The general surgical public will no doubt be very guarded as to the acceptance of this as a routine treatment for trifacial neuralgia. It will be remembered that only a few years since French surgeons lauded to the skies this same procedure for the cure of epilepsy, glaucoma, exophthalmic goitre, and almost anything else when a patient could be found who was willing to submit himself to the procedure.

The Technique of Lateral Entero-Anastomoses.—KUESTER (*Centralbl. f. Chir.*, No. 33, 1905).—The suggestion embodied in this article is that in making the lateral anastomosis with the Murphy button, each half of the button should be inserted separately into the open end of the small bowel, a slit made, the neck of the button pushed through, the two halves clamped together without purse-string sutures, and the open gut ends closed. This is, as all know who are doing any intestinal surgery, a most admirable procedure, and the remarkable part about it is that Professor Kuester, the head of a German university surgical clinic, should have taken this late day for publishing this as an original suggestion, years after so many other surgeons had been using it. Identically the same procedure was suggested in German literature several months ago by Sauerbruch, of Breslau, in his article on the resection of the esophagus.

The Radical Treatment of Cancer of the Rectum.—HARTWELL (*Annals of Surgery*, September, 1905).—The author has collected the history of forty-six cases operated upon by himself and other New York surgeons, and has arrived at conclusions which, based upon so much material, are valuable, to say the least. The operating mortality was twenty-six per cent., and more than half of those who died did so of sepsis in one form or another. This, as the author states, can certainly be avoided by deflecting the fecal current in some way from the field of operation. In only one case was there infection when this had been properly done. Sixteen per cent. of the patients are perfectly well more than three years after the operation, more than enough to warrant the procedure. In half of all the cases it is impossible to save the sphincters, and in the other half, where this may seemingly be attempted, the innervation of these muscles is so much interfered with that there is still no adequate control. Hence the author recommends, as have others of vast experience, that no attempt be made in these cases, except in very rare instances, to

preserve the sphincters. A properly made inguinal colostomy gives a better functional result, and should be done, the author says, as follows: The upper sigmoid end should be brought out of an intermuscular McBurney incision, and then drawn across between the rectus muscle and its anterior sheath and anchored in a slit in the median line. He considers that the operation is best done at two sittings, the second being undertaken two or three weeks later and completed from below, the coccyx and the lower portion of the sacrum being removed, after which the peritoneum is opened and the rectum and lower sigmoid segment are brought down. The detailed histories of the above forty-six cases are given, and the article is in every way a most thorough and instructive one.

Pleurotomy Through a Posterior Vertical Incision.—MOTY (*Gazette des Hopiteaux*, August 29, 1905).—The idea is here, as one might suppose, to empty the chest at its most dependent portion, with the patient lying down. This point is found on the seventh, eighth or ninth rib, about two fingers' breadth from the spinal column. So the author proposes that we make an incision about midway between the angle of the rib and its articulation with the spinal column. The arm is naturally to be drawn well toward the front, thus pulling the shoulder-blade over and exposing nicely the surface which is to be the field of operation. If sections of two ribs are removed in this line a good sized drain opening is established, and the author states that of twelve cases so treated, nine have recovered in a most satisfactory manner. The patients are very comfortable when lying down, the drainage tubes do not easily get out of place, and there is less movement of the ribs after operation than when the incision is made in the axillary line. Then, if the tube does perchance fall into the pleural cavity it remains at the site and can be most easily fished out again.

The Favorable Time for Operation in Appendicitis.—KOERTE (*Archiv. f. Klin. Chir.*, Bond 77, Heft 3).—The exact diagnosis of the pathological condition of the appendix cannot be made in the acute attack. Indeed, all the symptoms can mislead us, but of these the most reliable is muscular tension. In Koerte's work the mortality was 18 per cent. during the first two days, and 36 per cent. when the operation was done upon the third day. From this it is very easy to conclude that the operation should be done during the first forty-eight hours, if this be possible, and should be avoided later than this time if it is possible to get the patient over the interval. Later consequences of the attack are abscess, phlebitis, subphrenic abscess, pyelitis, empyema and dangerous adhesions. Most of the above, as the author very rightly states, can be avoided by a properly done early operation. After the third day a simple opening of the secondary abscess can be done with a mortality of little more than 5 per cent., although a radical operation late in the attack is about 16 per cent. mortality. Where there is paralysis of the bowel the mortality is 60 per cent., but is 77 per cent. where no operation is done, the conditions being similar. For interval operations the mortality is only 1 per cent. These figures are certainly of value to any surgeon in choosing his time for operation.

DIAGNOSIS.

IN CHARGE OF

A. E. TAUSSIG, M. D.

A New Test for Acetone in the Urine.—V. FROMMER (*Berl. klin. Wochenschr.*, 1905, No. 32).—Although we have at our disposal a number of tests for acetone, none of them can be regarded as entirely satisfactory when applied to the urine. Some of them can be applied only to the distillate from the urine, during the process of obtaining which the diacetic acid, if present, is converted into acetone, or the tests, as in Lieben's iodoform reaction are positive also in the presence of alcohol and aldehyde. Frommer claims that his test obviates both of these sources of error.

The test consists in rendering the urine strongly alkaline with potassium hydrate, adding a few drops of a 10 per cent. alcoholic solution of salicylaldehyde (1 part salicylic acid + 10 parts absolute alcohol), and warming to about 70 degrees C. It is best done as follows: Into 10 c. c. urine, 1 gram KOH is placed; before solution has been effected, 10 to 12 drops of the reagent are added and the whole gently warmed. Where the strong potash solution at the bottom of the test-tube comes into contact with the lighter supernatant liquid, there appears, in the presence of acetone, a dark red ring. If the salicylaldehyde is added after the KOH has gone completely into solution and has mingled with the urine, the fluid, if acetone be present, assumes successively a yellow, reddish, purple red and finally a carmine color. The reaction takes place more rapidly if the fluid is heated. In the absence of acetone the color of the mixture is unchanged. Neither diacetic acid, unless already split into acetone, nor alcohol and aldehyde will give a positive test. The reaction appears if as much as 0.000001 g. acetone be present in 8 c. c. of urine. The test is thus extremely delicate, and if it is true that it has no important sources of error, it will doubtless become one of our routine urinary methods. For the rationale of the reaction, formulæ, etc., the reader must be referred to the original article.

Diagnostic Puncture of the Lung in the Pneumonic Form of Tuberculosis.—GOGGIA (*Clin. Med. Italiana*, 1905, No. 3; *Gaz. des Hop.*, 1905, No. 91). Goggia has performed pulmonic puncture with aspiration in two cases of tuberculous pneumonia. In both he was able to demonstrate the presence of tubercle bacilli in the aspirated material, and in one found, in addition, virulent diplococci of Fraenkel. He considers this the most certain method of determining the nature of a pulmonic infiltration, especially when the sputum gives no positive information. It would seem, however, that the risk of opening new avenues of infection to the tubercle bacillus should prevent the general adoption of this procedure.

A Source of Error in Gastric Analysis.—V. BARTENSTEIN (*Berlin. klin. Wochenschr.*, 1905, No. 33).—When the gastric contents are aspirated

for the purpose of chemical examination, only a portion is usually obtained, another and often a considerable portion remaining in the stomach. It has hitherto been assumed that the degrees of acidity of the portion aspirated and that left behind are identical, or at least that any difference in acidity is so small as to be negligible. Indeed, the method of Mathieu and Remond for the determination of the amount of stomach contents is directly based upon this assumption. The writer, however, has aspirated the gastric contents in a number of cases in two portions, and has found very different degrees of acidity in the two. In four cases the first portion was the more strongly acid, the differences being 8, 18, 22, 38; in nine cases the second portion was the more acid, the differences being 6 (twice), 18, 20 (twice), 22 (twice) and 48. It would thus seem that the degree of acidity found in the expressed gastric juice can be assumed to represent the actual condition only where we can be sure that we have expressed practically all the contents, which will rarely be the case, or where a number of successive test meals give practically identical results. Perhaps the observation, not infrequently made, of hyperacidity without symptoms or of a hyperacidity history with normal stomach contents may be so explained. In any event, the determination of the volume of gastric contents by means of the comparison of the acidity of an expressed portion with that of a second portion removed after the introduction of a measured amount of water, would seem to have become entirely untrustworthy.

The Early Bacterioscopic Diagnosis of Pulmonary Tuberculosis.—C. A. BLUME (*Berl. klin. Wochenschr.*, 1905, No. 34).—In a number of cases of incipient phthisis, without sputum, the writer has been able to demonstrate the presence of tubercle bacilli by means of the following method: The patient is given a glass slide, such as is commonly used in microscopy, and for eight or ten days holds it in front of his mouth whenever he coughs. The slide is then fixed and stained, and often shows the presence of tubercle bacilli that have been coughed against it. The method would seem to be useful.

Staining the Gonococcus.—BROENNUM (*Hospitalstidende*, 1905, No. 20; *Muench. Med. Wochenschr.*, No. 30, 1905).—For routine work, in staining the gonococcus the writer recommends the use of very dilute solutions of methylen blue instead of the usual concentrated ones. The gonococci have a greater affinity for the stain than the nuclei of the leucocytes, and a better contrast is thus obtained than where both nuclei and gonococci are stained *ad maximum*. He advises the use of a 1 to 10,000 aqueous solution of methylen blue, the spread being otherwise treated in the usual manner.

A New Test for Lactic Acid.—W. CRONER and W. CRONHEIM (*Berl. klin. Wochenschr.*, 1905, No. 34).—If, in the presence of an alkali, iodine be added to lactic acid, iodoform is produced. The latter may be combined with an amin base (methylen, anilin, etc.), to form isonitril, recognizable by its extremely disagreeable odor. The reagent is prepared as follows: to 2 g. potassium iodide, dissolved in a few (not more than five) cubic centimeters of water, add 1 g. powdered sublimed

iodine; dissolve by shaking and filter through asbestos or spun glass (not through filter-paper on account of its starch); add water to make 50 c. c. To this fluid 5 c. c. anilin are added and the resulting solution kept in a dark-glass bottle. The reagent must be shaken before being used. It keeps for several months.

To the filtered stomach contents add a little 10 per cent. potassium hydrate solution, boil, add a few cubic centimeters of the above reagent. In the presence of lactic acid, especially if the whole be boiled again, the disagreeable odor of isonitril is unmistakable. The test is very delicate, the characteristic odor appearing when the stomach contents contain 0.0025 per cent. of lactic acid. This very delicacy will probably stand in the way of its general adoption for clinical purposes. It is rarely important to know whether the stomach contents contain a trace of lactic acid. What one wants to know is whether there is present enough lactic acid to be of diagnostic significance. The rough and ready ferric chloride test, which reacts only to considerable quantities of lactic acid, will doubtless remain the more valuable of the two.

Acetone produces the same reaction with this reagent as lactic acid. The test may therefore be of value for the detection of acetonuria, since the odor of isonitril is more readily perceptible than that of iodoform.

A Differential Staining Method for Bovine and Human Tubercle Bacilli.

—CARL SPENGLER (*Deutsch. med. Wochenschr.*, 1905, No. 31).—It is quite certain that bovine and human tubercle bacilli are two distinct races. The infection of human beings with the bovine bacilli is not very uncommon, and since the two kinds of infection differ prognostically and to a certain extent therapeutically, it is of considerable importance to differentiate between the two kinds of tubercle bacilli. Spengler believes he has found a staining method that accomplishes this end. The method is as follows:

1. A very thin layer of sputum is prepared on a cover glass, with great care, the spread being dried with very gentle heat.
2. Stain with carbol-fuchsin in the cold for one to five minutes. There must be no heating of the stain and no decolorization with acids.
3. Wash with 60 per cent. alcohol until no more stain is given off.
4. Upon the spread, still covered with alcohol, place one drop of Loeffler's methylen blue. As the drop spreads out, set fire to the alcohol and let it burn for two or three seconds.
5. Wash quickly with water, dry between filter paper and very carefully over the flame.

By this method the bovine tubercle bacilli take on a bright red color, like that of arterial blood, whereas the human bacilli either do not stain at all or are of a bluish red color like that of human blood.

The method would be useful if trustworthy. It still, however, requires confirmation.

Functional Cardiac Diagnosis.—SELIG (*Prag. med. Wochenschr.*, 1905, Nos. 30 and 31).—It is important not only to make a diagnosis of the nature of a heart lesion, but also to ascertain how competent the injured heart may be to perform the work required of it. To this end, the writer has his cardiac patients climb stairs to varying heights. The healthy

heart is not perceptibly affected by any reasonable amount of stair climbing. The height to which a patient can climb without showing signs of cardiac weakness and acute dilation, is a measure of the functional capacity of his heart. We have by this method a means of expressing in figures the ability of the impaired heart to do work. Patients with poorly compensated valvular lesions and possibly dilated hearts are often able to do astonishing amounts of stair climbing without the production of increased cardiac weakness. We are therefore not always justified in translating the findings of a physical examination into terms of functional capacity.

Casts in Normal Urine.—MAX GENTZEN (*Deutsch. med. Wochenschr.*, 1905, No. 33).—The diverse results obtained by various clinicians in investigating the question as to the presence of casts in normal urine, find their solution in a research undertaken by Gentzen in Schreiber's clinic. In the normal urine of over a thousand healthy or convalescent patients, the sediment obtained by centrifugating the fresh urine contained hyalin casts in only isolated instances. In only one case was a single granular cast found, and in another, a single epithelial cast. If, however, the urine be allowed to stand until a nubecula forms, and if this cloud be withdrawn by means of a pipette and centrifugated, very different results are obtained. The normal urine of 100 healthy persons was so examined. In 49 per cent., casts were found of which 30 per cent. were granular casts, 19 per cent. hyalin ones. Of the urines of physicians and young soldiers, 70 per cent. contained casts: 43.3 per cent. granular, 36.7 per cent., hyalin.

The writer concludes that the finding of casts in the centrifugation sediment of the fresh or well-shaken urine may still be considered indicative of renal disturbance. Where, however, the nubecula or the sediment on standing is withdrawn and centrifugated, the finding of casts is without diagnostic significance, since they are usually present in health.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

A New Method of Treatment of Pulmonary Tuberculosis by Immunization with Bovine Tuberculin.—SPENGLER (*Deutsch. Med. Wochenschr.*, 1905, p. 1228,) has shown that the power of the blood serum of tuberculous patients to agglutinate emulsions of tubercle bacilli, may be used as a criterion of the resistance which the infected individual develops against the disease. Taking this as a basis, he has found that the results of immunization with tuberculin derived from human tubercle bacilli are much less pronounced than those obtained with bovine tuberculin ("Perlsucht original tuberculin" P T O). Whereas Koch's tuberculin, even when injected intravenously, develops in the blood an agglutinating power which averages in dilutions lower than 1:75; the bovine tuberculin de-

velope an agglutinating power higher than 1:400, when used only subcutaneously. With prolonged injection of 5 mg. of P T O, agglutination in dilutions of 1:1500 may be obtained. This degree of agglutination is not transitory, but persists for at least a year. Furthermore, febrile reaction is relatively slight, and is in many cases entirely absent. It has a corresponding bactericidal effect on the tubercle bacilli, which disappear rapidly from the sputum and other discharges. The author regards bovine tuberculin as a vaccine against infections with human tubercle bacilli, of the same nature as vaccinia with relation to smallpox.

Spengler inoculated himself with living bovine tubercle bacilli with a resulting abscess and subsequent ulcer of nine months' duration, which was not accompanied by lymphatic involvement. This local infection produced in his blood-serum an agglutinating power of 1:500, and he feels justified in a tentative conclusion that such inoculation may serve as an immunization of healthy individuals against tuberculosis. For already infected individuals, however, the living bacilli produce too low an agglutinating power, and such cases require the use of the toxin in gradually increasing doses for the production of agglutination of a higher degree, which he regards as an increase in resistance.

The Action of the Salts of Quinine on Typhoid Fever.—CURLO and GOGGIA, (*La Clin. Med. Ital.*, 1905; *Zntrl. f. d. ges. Therap.*, 1905, p. 426).—Experimental investigations demonstrate a marked inhibitory effect of quinine salts on the development, vitality and virulence of the typhoid bacillus, and it may, therefore, be concluded that, as quinine is so little toxic for the human individual, it may be regarded as our best medication against typhoid fever. Clinical tests of this assumption were made in eighteen cases of typhoid fever, in six of which quinine was administered by mouth—in three intravenously, and in nine in both ways. The intravenous injections influenced both the temperature and the toxæmia very favorably; they also increased the power of agglutination of the blood serum. Cases so treated from the onset of the disease pursued an exceptionally mild course. This series was treated during an epidemic, the general mortality of which was 16 per cent.; only one case died, and this one was received with symptoms of intestinal involvement.

For intravenous injection a 10 per cent. solution of quinine hydrochloride was used, which was later exchanged for one of 50 per cent. of the double hydrochloride, seven and one-half grains of the salt being used at a dose. No untoward effects were noted.

The Cure of Tuberculous Peritonitis by Durante's Iodine Potassium Iodide Injection.—REALE (*Gazz. degli. ospedoli*, April 9, 1905; *Zntrl. f. d. ges. Therap.*, 1905, p. 427,) encouraged by the favorable results obtained by Durante's method in bone and gland tuberculosis, administered subcutaneous injections of an iodine potassium iodide solution in increasing doses in a case of tuberculous peritonitis. There was ascites reaching to the umbilicus. The fever and subjective discomfort improved after very few injections. The ascites disappeared entirely after the fortieth injection, and after the fiftieth the patient was discharged cured.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

Experimental Contributions to the Etiology of Primary Death from Burns.—H. PFEIFFER (*Virch. Arch.*, Vol. 180, p. 367).—Pfeiffer has experimented on rabbits in order to gain information on the theory lately pronounced that toxic substances are at the bottom of primary deaths from burns, excepting those resulting from shock. He found that urine and serum of rabbits became toxic for mice, rabbits and guinea-pigs rarely within the first twenty-four hours after the burning. The toxin increases in quantity with the length of time after the injury. Locally, it causes extensive necrosis and, generally, hyperirritability, followed by paralysis and death from respiratory failure. The amount of hemoglobin has no influence on the toxicity of the serum. Serum contains more toxin than urine. The toxin is destroyed by light and by higher temperatures; in a dry condition and in a vacuum over H_2SO_4 it can be preserved. It passes through porcelain filters, shows in its action no period of incubation, and is effective whether introduced subcutaneously or per os. It resembles, in many respects, the snake venom. Experiments showed that the toxin is not formed at the site of the burns. A change of the cells must precede the formation of the poison. It has nothing to do with the blood-changes occurring in the first few hours after the burn. It has no hemolytic or agglutinative qualities. The changes of the erythrocytes can be explained simply by direct effect of heat on the corpuscles within the vessels. The author has observed, in his experiments, as analogy to the appearance of an ulcer ventriculi after a burn in human beings, the occurrence of very similar ulcerations in stomach and intestines of rabbits. The latter cannot be a direct effect of the heat, as they occur in rabbits whose ears only are burned. The general conclusions are that the death after burns in the first few hours is a consequence of shock, later an intoxication. This toxic effect is directly the cause of death during the first three or four hours; after that only indirectly by secondary organic changes caused by the toxin.

About an Embryoma of the Lower Leg.—BERNHARD FISCHER (*Muench. Med. Woch.* 1905, No. 33).—Fischer describes the case of a man fifty-seven years old that came to autopsy with a miliary tuberculosis, and who for six years had noticed a gradual enlargement of the right lower leg. The post-mortem examination revealed a large subcutaneous tumor that had encroached upon and between the musculature. The histological study of it showed a great variety of various tissue complexes imbedded in a myxomatous tissue. Large utriculi were found representing the structure of the intestine as well as mucous glands and other epithelial structures. No ectodermic constituents could be discovered, but many mesodermic formations, as cartilages, bone, etc., were present. The tumor, therefore, is undoubtedly embryoma. The situation of such

tumors in the tissues of the lower extremity has so far not been observed. As a careful investigation, especially of the testicles, did not show any reason to consider the growth metastatic, but certainly a primary new formation in the calf, its origin cannot be explained by a fetal inclusion since the extremities arise as buds and never show any clefts. A misplacement of the germinal layers in loco is excluded by the structure of the tumor (entodermic). Therefore the anlage of the tumor must have been present in the tissue when the limb arose as a protusion, that is, before the fourth week of fetal development. The conclusion which must be drawn is that its origin is to be looked for according to the blastomere theory of Marchand and Bonnet. An interesting evidence, too, is offered by the age of the patient, who, dying in the fifty-seventh year of life, not more than six years before became aware of the presence of the tumor. One cannot imagine a better proof for the capacity of embryonically misplaced tissue-complexes to remain dormant for a long time, and nevertheless afterwards exhibit, almost undiminished, all of their physiologic faculties of differentiation. The stroma in this case had in many places the character of a myxosarcoma, that destructively had invaded the surrounding muscular structures. The author rightfully asks, whether for this malignant growth a different origin ought to be assumed. His observations throw a searchlight on many views held in the teachings of pathology.

Observations on Malignant Tumors of Mice.—P. EHRLICH u. H. APOLANT (*Berl. Klin. Woch.*, 1905, No. 28).—In a great number of mice Ehrlich and Apolant succeeded in demonstrating that the tumors arose from the mammary glands. The forms that they examined belonged to the adenomata and adenocarcinomata. They could experiment with seventy-one tumors, of which ten proved to be transplantable; in some cases every transplantation was successful. The authors' calculations about the intensity of the growth of these tumors after transplantation are very interesting, and from their observations it follows that the character of malignancy lies only in the illimited capacity of multiplication. In one case, where the transplantations were successful through a long series of mice, the carcinoma was gradually transformed into a mixed tumor that after a while lost all of its carcinomatous constituents and represented itself as a spindle cell sarcoma. If sarcoma and carcinoma were transplanted together, a mixed tumor appeared (?).

Are Toxins Ferments?—L. v. LIEBERMAN (*Deutsch. Med. Woch.*, 1905, No. 33).—In a somewhat superficial way of comparing, it has become customary to almost identify the character of toxins and ferments. Lieberman has utilized the blood-agglutinating qualities of *ricin* and *abrin* to search for analogous reactions between them and those of ferments. Neither for *ricin* nor *abrin* could there be found anything to interpret the agglutination of red corpuscles as a fermentative process. As for *abrin* the toxic and agglutinative qualities are closely allied, the author is inclined to conclude in the same way on the non-fermentative character of the toxic substance, but the difficulties of experimentation do not permit of this being established directly. Bloch has announced the interesting idea, in order to explain the enormous toxicity of toxins,

that the minute quantity of toxin acts only on small, but vitally important groups of cells, or that the toxins act on substances not organized, but essentially important for certain physiologic processes. The value of his experiments lies in the exact demonstration, as far as our methods can show, that there is no analogy between the mode of action of toxins and of ferments.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

HUGO EHRENFEST, M. D.

The Sudden Paralysis of the Uterine Muscle During Curettment.—CATHERINE TUSSENBROEK (*Zentralbl. f. Gyn.*, No. 34, 1905).—Kossmann in his book "Allgemeine Gynaekologie," has stated that he has met in several instances with a sudden complete relaxation of the uterine wall in the course of a curettment performed in apparently normal, not pregnant uteri. Strassmann, in reviewing the book, took exception to such "dangerous teachings," giving expression to his belief that Kossmann in every one of these instances simply had perforated the uterine wall. A lively polemic ensued (*Zentralbl. f. Gyn.*, No. 3 and 5, 1905), in which Kossmann insisted upon the reliability of his observations, while Strassmann tried to prove that physiologic and mechanic reasons preclude such a sudden paralysis. It is obvious that this question is one of unusual practical importance. If the sudden relaxation really is an impossible occurrence, then the diagnosis of a uterine perforation is established, and the necessity of an appropriate treatment of such arises, whenever in the course of a curettment the curette suddenly slips deeper into the uterus than corresponds to the length of the uterine cavity as ascertained by means of the uterine sound before the curettment began.

Tussenbroek makes the surprising statement that this relaxation is a typical occurrence in the curettment of the non-pregnant uterus. It can be observed, more or less pronounced, just after the first few shreds of the endometrium have been scraped off. If the curettment is carefully continued the uterine wall soon regains its normal tonus. The writer calls attention to the fact that Professor Van de Mey, in 1894, has described this peculiar phenomenon, and has emphasized its importance in the etiology of a perforation during curettment. If proper care is not taken the relaxed wall is easily injured. Tussenbroek's observations seem to be very exact and hardly can be doubted. She concludes her very interesting article with a polemic against the theoretical reasons which have been advanced by Strassmann in trying to disprove the possibility of a paralysis of the non-pregnant uterus.

The Pathologic Effects of Alcohol on Rabbits.—JUL. FRIEDENWALD (*Jour. Am. Med. Assn.*, September 9, 1905).—In studying the effect of alcohol upon rabbits, the author made a series of experiments on female rabbits. The result of these experiments are described as follows: There can be no question but that alcohol has a marked tendency to pro-

duce abortion in rabbits. In a series of thirty-eight pregnant rabbits, twenty died of septicemia due to abortion. The organism of rabbit septicemia was found in all cases. Of the remainder, nine had constant abortions, none of the young being born at full term. Three had their young normally, but these all died in a few hours after birth.

[It seems interesting to quote these observations, because they are identical with those made by obstetricians in chronic alcoholists. Women addicted to the use of alcohol show a very marked tendency to premature termination of pregnancy. The importance of parental alcoholism on the other hand, in the etiology of various diseases of the newborn, especially of diseases affecting the nervous system, is well known.—ED.]

Tuberculine Injections in Apparently Healthy Nursing Women.—BINSWANGER (*Beitr. zur Klinik d. Tuberc.*, IV., 1).—A primary infection with tuberculosis from the intestinal tract, is the exception; as a rule, the bacilli are carried from individual to individual, either in form of a wound infection or by being inhaled. From a theoretical point of view, newborn children should be separated from their tuberculous mothers; in practice this would mean a decided disadvantage to the child. The danger of a possible direct infection of the digestive tract by tubercle bacilli, contained in the mother's milk, is exceedingly small in comparison to the risks implied in changing to artificial food, and as far as the mothers are concerned, nursing, as a rule, does not impair their general condition.

Binswanger made his investigations in a nurslings' home in Dresden, to which only those patients of the maternity clinic are admitted, who, after a physical examination, have been found to be free of tuberculosis. Nevertheless, tuberculine injections made for diagnostic purposes in seventy-eight mothers of the home, in twenty-six cases showed a positive reaction.

The Differentiation of the Sexes.—M. HIRSCHFELD (*Monatschr. f. Harnkrankh*; rev. in *Zentralbl. f. Gyn.*, No. 33, 1905).—The writer believes that the differentiation between male and female is by far less distinct than is generally thought. He concludes his article with the following theses: (1). All differences of sex are only quantitative. (2). All the sexual characteristics pass in their development through three stages—an asexual (latent), a sexual (not yet differentiated), and a bisexual (differentiated). (3). Every bion, resulting from the conjugation of two sexes, contains besides the marked characteristics of the one sex, those of the other in more than a rudimentary form. (4). The later a sexual characteristic becomes differentiated, the more it is likely to vary from the typical. (5). Every one of the sexual characteristics may be different from the normal, but there seems to exist a correlation between such deviations of the characteristics, at least among those which develop at about the same period of life. (6). The variability of individuals, both in somatic and physical respect, is to the largest extent dependent upon the great variability in the proportion of male and female attributes combined in the individual.

Epileptic Attacks in a Case of Bilateral Ovarian Tumor.—A. W. RUSSELL (*Glasgow Med. Jour.*, February, 1905; rev. in *Zentralbl. f. Gyn.*, No. 33, 1905).—The author observed in a girl twenty-four years of age, the development of a typical epilepsy coincident with the appearance of tumors in both ovaries. He always suspected an etiologic relation between these two diseases in this patient, and feels that the tumors played an important role in the causation of the nervous trouble, because the epileptic attacks, which gradually had increased in frequency and intensity, ceased three years later quite suddenly after the removal of the ovarian tumors.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

The Function of the Tibialis Anticus Muscle as Regards Its Relation to the Pathogenesis of Static Mechanical Flatfoot.—RAFFAELLO GIANI (*Zeit f. Orth. Chir.*, Band XIV, Heft 1).—The writer reports a case as follows: A boy who had his leg run over by a street car sustained a crushed wound extending over the anterior outer side of the leg, thereby stretching its middle third and injuring the muscles lying beneath. The child recovered, but on beginning to use the leg, it was noticed that there was a continually increasing tendency to equinus. Two years later an examination revealed the fact that the belly of the tibialis anticus muscle had disappeared in the region of the wound. There was no reaction to the Faradic current. The author cites this case to show that damage to the muscle may lead to pure equinus. Reasoning from this conclusion, experiments were done on three hundred normal individuals of every age, the tibialis anticus muscle being stimulated by Faradic current. The results are tabulated, and show that the tibialis anticus may or may not have adducting power. The conclusion, therefore, is that this muscle, aside from its function of activity, has a passive function of maintaining the internal arch by holding up its vertex—namely, the internal cuneiform.

The Pathology of Joint Contractures.—J. v. MIKULICZ, Breslau (*Zeit f. Orth. Chir.*, Band XIII, Heft 2-3).—As the knee joint is the best joint for study, the writer confines himself to this joint, and discusses the theoretic side, leaving the more detailed report to Dr. Ludloff. By joint contraction is meant a partial or complete limitation of active and passive motion, with the exception of true ankyloses. Mikulicz, in this paper, reports on the origin of orthogenous contractures chiefly, while Ludloff reports the primary myogenous and neurogenous contractures. In the pathogenesis of arthrogenous contractures there are three factors: (1) The position of the joint is brought about by the muscles moving it. This is not reflex, but is due to equal inactivity of all the muscles. It is in a mid-position that muscles and bands are equally inactive, for pain is least in such a position. Hence the knee is placed in a partially

flexed position. (2) A change in the capsule and ligaments. On account of pathogenic thickening and contraction, their elasticity is lost, and the motion in the joint is limited. (3) Changes in the bone.

The Pathology and Therapy of Joint Contractures.—H. GOGHT, Halle (*Zeit f. Orth. Chir.*, Band XIII, Heft 2-3).—Due to the fact that flexors usually show the first pathologic change, pathologic contractures occur in flexion. The author gives a list of the flexion contractures for various joints, also a list of the best positions for functional use of the same joint. He lays down for principles of treatment the following: Immobilize the joint as long as it is inflamed or painful. Care must be used to correct inflamed contracted joints, the correction being done slowly, without narcosis and without pain. The joint should be distracted during the act of correction. The distraction thus gained must be held after correction by the proper plaster dressing. After the position of complete correction is obtained, it should be held with apparatus. The same principles of caution hold good for joints that are no longer inflamed, except that narcosis may be used. A tuberculous joint should not be mobilized, but where the stiffness is due to other cause the joint should be made as mobile as possible.

Joint Inflammations in Sucklings, and Their Etiological Relation to Later Deformities.—G. DREHMANN, Breslau (*Zeit f. Orth. Chir.*, Band XIII, Heft 2-3).—After a review of the literature and report of cases, the author concludes that these typical joint inflammations that appear in early infancy, even as early as the second week, and are signalized by swelling and contraction, present a relatively good prognosis. The etiology is little understood. The symptoms may last several weeks, and may lead to suppuration. He is of the opinion that a relationship exists between these affections and subsequent deformity, such as coxa vara and dislocation of the hips.

Limitations of Erasions in Coxalgia. Third Paper.—R. TUNSTALL TAYLOR, Baltimore (*American J'l Ortho. Surgery*, July, 1905).—In two previous papers the author outlined what he has termed "combined treatment" in coxalgia—that is, he emphasized the value of the x-ray as a means of making a diagnosis as well as the necessity of using the well-known mechanical measures for hip disease, as if no operative treatment of erosion or attempted extirpation of the disease had been attempted. He divided the cases suitable for operative treatment into three groups: (1) Beginning cases, where the focus is very small indeed, well within the bone, and not encroaching on the joint surfaces. These cases we may leave to conservative methods of rest, fixation and traction, in the hope that nature will resist further inroads of the process, as we all know that it is possible to obtain a cure in early cases. Such cases should have x-ray examinations made from time to time in order to determine extension or actual joint invasion. (2) If extension is found, then erosion must be done if acute symptoms persist. (3) If the case has extensive sinuses, which are secondarily infected, the patient's condition is bad, and the skiagram shows extensive joint destruction, nothing can be gained by erosion or incision. Our best plan is then to lay the sinuses open wide and overcome the secondary infection

as soon as possible. Experience has taught us the practical impossibility of helping these cases by extensive bone operation from the prolonged suppuration that usually follows with fever and amyloid changes. The author, therefore, only urges the operation of erosion on what might be called cases of moderate bone involvement, or those in class 2 in which acute symptoms persist. He wishes to call especial attention to the importance of carefully choosing this middle class of cases for erosion. Oftentimes surgeons, ignorant of the subsequent history, or those who do not follow up such cases, fortified by the triumphs of asepsis, lose sight of the relapses which occur when these cases are not properly treated by mechanical means. Erosion is of unquestionable value in properly selected cases, but unwarranted where improvement is seen by conservative methods. The author is convinced, after an experience of some twenty-five cases of erosion on tuberculous joints, that the so-called conservative measures give the largest percentage of success. The age of the disease is more responsible for the shortening than the age of the child when erosion is done. But the epiphyses in joints of children are no place for radical surgery. What we are after are end-results, viz.: A joint that approaches normal in mobility and function and a limb as little impaired by shortening and atrophy as possible. The author mentions three cases as types in which the temptation was great to do erosion, but the abatement in acute symptoms and the steady improvement in joint conditions contraindicated such a step.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M. D.

Hydrocephalus and Posterior Basic Meningitis.—HILDESHEIM (*Practitioner*, August-September, 1905).—This paper is an investigation into the sequelæ of non-fatal meningitis in children, and elucidates some obscure points in the etiology of hydrocephalus. The material is a large one (128 cases), and therefore the conclusions are important. The connections between these two types of disease is a very close one, not only for the light it throws on the former condition, but also because it demonstrates the fact that many cases of posterior meningitis show very few signs or symptoms, and that a very mild form of the disease is by no means rare. The author endeavors to prove the following: (1) That current views on the etiology of hydrocephalus rest on insufficient authority, and that hitherto cases beginning in the first months of life have been grouped with those present at birth; (2) that some of the undoubted cases of congenital hydrocephalus are due to meningitis; (3) hydrocephalus is so frequent a result of posterior meningitis that it might almost be considered a symptom; (4) that in older children posterior basic meningitis sometimes leaves sequelæ which are probably signs of what might be called concealed hydrocephalus—that is to say, hydrocephalus without any appreciable enlargement of the head;

(5) that in the majority of cases of hydrocephalus, enlargement of the head begins at the age when posterior basic meningitis is most common; (6) that at the onset the presence of posterior basic meningitis can be recognized in every grade of severity, in those cases in which all the classical features of the malady are present, as in those in which only one symptom is present, and that beyond these latter are certain cases which begin at the same period of life in which no symptoms are recorded at the time of onset.

Epilepsy and Eye Strain.—SPRATLING (*New York and Philadelphia Med. Jour.*, September 16, 1905).—Spratling has already published an investigation which had for its object a test of the often repeated assertion of Gould, that eye strain was an important, if not the most important, factor in the causation of epilepsy, and that for the cure of epilepsy all that was needed was the correction of very minute defects in the visual mechanism of the eye. Spratling allowed 68 cases of epilepsy at the Craig colony to be examined in the manner suggested by Gould, with the result that, after a certain lapse of time, only one of these showed any appreciable improvement in his epilepsy. In this note Spratling shows that the single favorable result was only an apparent success, as the attacks returned again with their former intensity.

The Influence of Focal Lesions in the Brain on Menstruation.—MULLER (*Neurologisches Centralblatt*, September 17, 1905).—Axenfeld made the statement that basal tumors, very likely through their influence on the hypophysis, could cause a permanent amenorrhea. The fact that an acromegaly was one of the earliest symptoms, seemed to strengthen the correctness of the observation. Five cases are described by the author in which he was able to note that a permanent amenorrhea was the earliest symptom of tumor cerebri, and that the localization of the growth was in the cerebellum or in the occipital lobe. It is of interest to know that in one of these cases a diagnosis of probable pregnancy was made at first. The explanation of this phenomenon is not known; the assumption that the hypophysis has a special function in relation to the menstrual activity cannot be supported, nor can the theory that the cerebellum exercises any sort of control over it be supported.

The possibility that the amenorrhea in these cases may be looked upon as a vasomotor symptom is worthy of further study. Before cases of this kind can be accepted as belonging to the category in which the examples here set down are included, all other causes for amenorrhea must, of course, be excluded. It is important to furnish more data upon this apparently new observation, and this symptom should be carefully watched for in all cerebral growths.

Epileptiform Attacks During the Course of Dementia Præcox.—MASOIN (*Journal of Nervous and Mental Disease*, September, 1905).—This observation was made at the colony of Gheel, in Belgium, where there were 68 cases of dementia præcox among 825 patients. Of these, five were subject at times to convulsions of a clonico-tonic variety. The interest in this observation lies in the fact that the epileptic attacks in dementia præcox may bear a close relation to the other motor phenomena com-

monly seen in this disease. The impulse to movement, the incessant activity shown by these subjects, seems to arise from a real necessity, dependent upon nervous hypertension, for which these sudden and violent externalizations are the discharge.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

The Disinfection of Catheters by the Use of Formalin.—ROSENBERGER (*Therapeutic Gazette*, August 15, 1905).—The author finds from experiments on English web and soft rubber catheters of various sizes that exposure to formaldehyde in a closed vessel will sterilize these instruments in twenty-four hours or keep them sterile indefinitely after they have been boiled and placed in an air-tight container, without injury to the texture of the fabric.

The method employed was to expose the instruments to 5 c.c. of formalin upon absorbent cotton which was placed in the end of an air-tight metal tube containing the infected and sterilized catheters. Formalin was found to give better results than paraform, the former generating formaldehyde more readily and without application of heat.

Exstrophy of the Bladder Successfully Treated by Peters' Method.—SHERMAN (*Jour. A. M. A.*, September 23, 1905).—In Peters' operation the ureters are dissected out individually, keeping a small circular patch of bladder wall around the vesical orifice of each. The rest of the bladder wall is ablated. Each ureter, with its button of bladder wall, is then drawn through a small slit in the rectal wall of its own side and left hanging from 1 cm. to 1.5 cm. into the rectal lumen.

The idea on which the operation of Maydl was based, namely, that there was a sphincteric action in the muscular layer of the bladder wall around the openings of the ureters, and that this required the conservation not only of this muscular fibre which surrounded each ureteral orifice, but also of those that surrounded both of them together, has to be abandoned; and with it may be given over the necessity for transplanting the whole of the trigone of the bladder into the colon or rectum, and making it practically a part of their wall. It is only necessary, therefore, to conserve such part of the bladder wall as surrounds each ureteral opening individually, and even this not with the idea that it contributes a sphincteric control of the opening, but merely with the idea that the wound of the mucous membrane is made at a reasonable distance from the mouth of the ureter and that the ureteral mucosa itself is left absolutely intact.

In the earlier operations which Peters himself did, he passed into each ureter a small catheter and fastened it there. Its presence in this ureter served as a guide which prevented the wounding of the ureter during the operation and afterward served as a means to conduct the urine out of

the rectum during the first thirty-six to forty-eight hours following the operation. In one of Peters' patients an ascending infection occurred and the patient died, and Peters thought that the infection possibly was due to the fact that he had left the catheter in the ureter after the transplantation of the ureter into the rectum.

The author departed from Peters' technic in that he left the catheters in the ureters only until they were transplanted into the rectum. In the operation, as Peters' has described it, dilatation of the sphincter ani was practised so as to permit free exit for the urine. From fear of anal incontinence the author omitted this step, but fastened a little rubber tube in the anus. In the author's case the rectum acted perfectly well as a bladder from the beginning, and would retain urine from one to two hours. Later the period was increased to three to four hours. There has been no ascending renal infection. Peters' first operation was done in 1901, and the patient has now lived four years with his rectum doing duty as his bladder.

The Syringe versus the Irrigator in Gonorrhea.—VALENTINE (*Amer. Jour. Urol.*, July and August, 1905).—The past two years have been productive of several articles more or less denunciatory of irrigations in gonorrhea. The author endeavors to answer these and states his position as follows:

1. Even the mildest manifestations of gonorrhea, spells a dangerous disease to the patient, his wife, his children and the community.

2. No honest conscientious advocate of the irrigation treatment of gonorrhea ever claimed that a patient was cured, before all the tests which present science demands (briefly sketched under paragraph 19 of this paper) have shown the permanent absence of gonococci.

3. No honest advocates of the irrigation treatment ever made the preposterous, unscientific assertions quoted as coming from them.

4. All advocates of the irrigation treatment insist and repeat and incessantly reiterate that the irrigation treatment, like any other treatment, is positively dangerous, unless employed with caution, tact and gentleness.

5. The immense numbers of gonorrheas successfully treated by irrigations, owe their recovery to the operators' gentleness and judgment.

6. Unbiased exhaustive trials, carefully conducted on a large scale, with each new drug advocated for the cure of gonorrhea, have invariably caused us to return to the irrigation treatment.

7. The technique of irrigations is not so difficult to acquire, but their successful employment requires the same scrupulous attention to details that is demanded by every other remedial measure in any other disease.

8. The choice of drugs used in irrigating solutions is not limited to potassium permanganate, silver nitrate or mercuric bichloride, but is governed by the needs of each case.

9. The guides for the selection of drugs and the strength of the solutions employed are, the condition of the discharge, the microscopic and cultural results, the character of the urine, and such involvements of the major and minor adnexa as may exist.

10. Chronic gonorrhea is always dependent upon infiltration of the urethral mucosa, involvement of the urethral crypts, glands and follicles

or invasion of Cowper's glands, the prostate or seminal vesicles or all of these; therefore treatment of these extensions of the disease is necessary in conjunction with irrigations.

11. When a patient with acute anterior gonorrhea comes under treatment before the adnexa are involved, he will escape complication, if irrigations are cautiously, skillfully, gently and judiciously employed.

12. No other form of treatment will relieve pain and reduce discharge as quickly as do properly administered irrigations.

13. Those who desire to have ocular demonstration of the effects of carefully administered irrigations, are invited to observe as many cases as they wish, from the beginning of the treatment to its end.

14. Such observations will show them that by irrigations, pain is promptly arrested, discharge reduced, the course of the disease abbreviated and complications and sequelæ avoided.

LARYNGOLOGY AND OTOTOLOGY.

IN CHARGE OF

WILLIAM E. SAUER, M. D.

Resection of the Inferior Turbinate.—FORSELLES (*Monatsschrift fuer Ohrenheilkunde*, etc., June, 1905), believes the galvano-cautery method is giving way to *resection* in removal of the inferior turbinate. He quotes Klemperer (1899) who considered it unnecessary to discuss at that time any other methods than the cold snare and galvano-cautery.

Ostman, however, in the same year proposed a combined method, breaking the continuity with the galvano-cautery, and then using the cold snare to remove the hypertrophied part.

Baurowicz mentions a similar method, removing, after the galvano-cautery severance, the hypertrophic tissue by either the cold snare or with the Beckmann scissors.

Fein has constructed for the removal of these hypertrophies a rhomboid double scissors which cut through front and back simultaneously.

Forselles, after describing the combined methods of Kuttner, Wroblevski, Von Flatau and others, thinks due consideration was not given the forceps for this operation; the forceps in general use are too weak and unsuited for the bony operation. Voss' instrument is an example. The author has at last invented a forceps which meets the requirements and furnishes a cut of same; its length is 18 c. m. with direct shanks $5\frac{1}{2}$ c. m. from the *lock*. The points of the blades are slightly grooved in order to engage the posterior hypertrophy. The shanks are made stronger so as to admit of elastic motion. After cocaineization with a 10 per cent. solution the patient is put on the operating table, and the turbinate engaged with the forceps so that the lower blade is under in the inferior meatus and the upper blade above in the middle meatus. Since one generally removes a larger piece of the posterior part the forceps points are directed somewhat outward. The turbinate is seized

strongly, as much laterally as possible, and with a turn from left to right, removed with one pinch.

The operation is accomplished in a second without any considerable pain. By the rotary motion, which is important, a clear removal is accomplished and bleeding controlled. The horizontal position is desirable for this maneuver—rotary motion, and cases of fainting do not occur. During the crushing the hemorrhage is minimal and one need fear no suffocation from the detached part falling, since it is held by the forceps. Adrenalin is not needed in this operation. Forselles has operated (1900-'04) on 210 cases by this method and the operation grows in favor with him.

Indications for Opening the Mastoid Process in Cases of Acute Empyema of the Cells Where there is an Absence of Signs Over the External Surface of the Mastoid.—SHAMBAUGH (*Ill. Med. Journ.*, July, 1905). In the first place such cases rarely, if ever, develop in early life, or in children, for here the outer shell of the process is quite porous, and readily permits of the extension of the inflammatory process going on within the pneumatic spaces to the periosteum covering the process.

Whenever in the course of an acute purulent otitis media there occurs a sagging down of the membrane lining the inner end of the upper posterior wall of the external meatus, especially when associated with a rise of temperature, positive evidence exists of a mastoid abscess, even though there is a complete absence of any signs over the external surface of the process. The only condition that might be confused with the above sign is the existence of a furuncle at this point.

Whenever in the course of an acute otitis media a tender, sometimes fluctuating swelling occurs in the soft tissues of the neck below the tip of the mastoid, even though no signs are present over the mastoid, the presence of an abscess in the large cells at the tip of the mastoid is probable—Bezold type.

Again where the discharge continues four or five weeks, in spite of rational treatment, and the membrana tympani, in spite of the free escape of pus, appears injected, and the upper posterior quadrant bulging, it is wise to consider the question of opening the mastoid to obtain better drainage, and to preserve the function of hearing. In the discussion Ballenger mentioned the likelihood of bony involvement if the perforation be marginal, and gave as another indication for operation, facial paralysis.

A So-Called Bony Cyst of the Middle Turbinate of Excessive Size.—SCHATZ (*Monatsschrift fuer Ohrenheilkunde*, etc., June 1905).—About the middle of February, 1903, Schatz saw a woman, age forty years, who, fourteen days before, became sick with what appeared to be influenza. She had headache, backache, joint pains, a slight cough and some fever. While these symptoms improved in a few days, a constant boring and twinging was experienced over the left eye, and a considerable swelling of the left nasal bridge and left supraorbital region supervened. The pains became so intense that the patient had not slept or eaten for a week. The pain became intolerable; the previously sensible patient

cried out in an alarming manner. This woman had never suffered from catarrh nor a purulent discharge, nor did she at this time.

The left nasal cavity was occupied in a large part by a globular tumor. The septum was pushed considerably to the right. The mucous membrane of the anterior part of the tumor was edematous. Probing brought out the fact that the swelling had a bony origin. Crepitation could not be elicited on pressure, nor was any pus visible. Schatz opened the forepart with hammer and chisel, and at once pus exuded. Hanging from the roof of the bony cyst two bean-sized polypi were seen. He removed by the snare and bone forceps the whole swelling, or, better, shell, which was so attached that the middle of the wall was grown to the septum. The operation was followed by complete relief from pain subjectively, and percussion of the supraorbital region no longer elicited severe paroxysms of pain. Schatz, on the statement of the woman that for a year she had not been able to breathe well through the left nostril, concluded that the case was one of an ethmoid cell having projected deep into the middle turbinate, which became inflamed and through closure a cyst formed, the influenza acting as the exciting cause.

Ocular Symptoms of Affections of the Accessory Sinuses of the Nose.—POSEY (*Journal of American Med. Ass'n*, September 9, 1905).—Calls attention to the aid an oculist may sometimes give in discovering or suspecting sinus affections. An important point to be remembered is that very pronounced disease of any, or, indeed, of all the sinuses, may occur without occasioning any subjective nasal symptoms, and, secondly, that repeated rhinologic examinations may fail to discover pus in the nares in sinusitis, the affection of the cavity being only detected by catheterization and irrigation.

The early symptoms of many diseases of the accessory sinuses are ocular. (1) Disturbances in vision and the visual field. The involvement of the optic nerve as a consequence of ethmoidal or sphenoidal sinusitis may vary in degree from a simple edema to an active retrobulbar inflammation. (2) Changes in the orbit. A chronic distention of the walls of a sinus (hydrops) may occasion a dislocation of the globe. In affections of the sphenoidal sinus involvement of the ocular muscles is not uncommon. Ethmoidal disease chiefly manifests itself in the intraocular and conjunctival circulatory disturbances, and in the production of asthenopia by interference with the extraocular muscles. (3) Affections of the lachrymal apparatus, especially pre-lachrymal abscesses. (4) Affections of the lids, especially edema of the upper lid on the nasal side. (5) Affections of the extraocular muscles. Paresis and even paralysis of one or more of the eye muscles may occur as a consequence of sphenoidal sinusitis.

Posey also considers affections of the conjunctiva, of the cornea, of the uveal tract, pupillary changes, cataracts, errors of refraction, asthenopia, headache and neuralgia, referable to sinus disease.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

The Age-Incidence of Herpes Zoster.—WILLMOTT EVANS (*The British Journal of Dermatology*, June, 1905).—There is quite a difference of opinion as to the age at which herpes zoster is most frequently met, and this diversity is not to be explained by any misunderstanding as to the disease to which the name herpes zoster is to be applied. The author found that half of all his cases were under fourteen years of age, this result agreeing almost exactly with Radcliffe-Crocker's statistics, who found that half of his cases were under thirteen years of age. Further, the author found that over the age of forty there were many cases, amounting to about one-sixth of the whole number. This, too, agreed with Radcliffe-Crocker, who stated that after deducting the cases occurring under the age of twenty, the majority were over forty. Thus, according to the author's statistics there are two periods of life when herpes zoster is especially likely to occur; first, in patients under fourteen years of age, and, secondly, later in life, say after the fortieth year. As to a possible explanation of the very marked divergence of the opinions expressed, the author considers it a fairly safe rule that, when in any disease there are two distinct periods of incidence, there are two distinct etiological factors, or two separate diseases have been confused. It is important to bear in mind that different sets of statistics frequently refer to different localities or different classes of the community. In favor of this view is the relative frequency of occurrence of herpes zoster. In the statistics of the American Dermatological Association the frequency of herpes zoster is given as 1.15 per cent. Radcliffe-Crocker found in 10,000 out-patients that herpes zoster amounted to .61 per cent., while among his private patients the frequency was only .36 per cent. These great variations show that locality is probably responsible for some of the differences. Herpes zoster does not occur equally in all parts of the country nor in all ranks of society. In epidemics the disease is almost confined to children, and thus in places where the disease is especially liable to occur in epidemics the proportion of cases in children will be unduly exalted. Another important factor is, in the author's opinion, the multiple origin of the disease. There is much reason for thinking that a large majority of the cases of herpes zoster are really of microbic origin; the chief arguments in favor of this view are the occurrence of epidemics and the seasonal prevalence of the disease. This microbic variety may be looked upon as the essential form of the disease, simulated by cases of other etiology. These other cases may be produced by such widely separated causes as arsenic, trauma and tuberculous meningitis. With so varied an etiology, it is inevitable that great discrepancies must occur in different series of statistics. The question then arises, can we assign different causes to different groups of herpes zoster which some statistics have shown to exist? The author is inclined to attribute most cases of the disease oc-

curring in children to the microbic form, while those cases occurring after forty will naturally fall in another etiological group, though the exact cause cannot yet be determined.

The symptomatology presents a very strong argument in favor of this broad division of herpes zoster. In children the disease is very rarely painful, and any pain that has been present disappears promptly with the eruption. With those more advanced in years the case is otherwise. Not only may the eruption be preceded and accompanied by severe neuralgic pain, but long after the vesicles have scabbed and healed, the pain may persist with agonizing intensity. The severity of the pain and the extent of the lesion bear no sort of relation to one another, the greatest pain often being experienced when the skin lesion is but slightly marked. This difference in the severity of the pain, the author thinks, points to an etiological difference. In no work on the subject has the author been able to find a reference to the preponderance of women in the cases of herpes zoster occurring after forty. Of his own cases, more than 75 per cent. were women. In various text-books reference is made to the relative frequency with which the two sexes are affected, but these statistics refer to the diseases of all ages, being valueless for comparison with the author's experience with patients of over forty years.

The Influence of Potassium Iodide on the Resistance of the Blood Fluids to Staphylococcus Albus.—G. T. WESTERN (*The British Journal of Dermatology*, August, 1905).—The author thinks the frequent appearance of a pustular eruption in iodism may possibly be explained either by some influence of this drug over the serum, such as a limitation of its power to produce those bodies which prepare the bacteria for phagocytosis, or a power of combining with or neutralizing those bodies when formed. He offers in support of this idea the fact, recently demonstrated, that "opsonins," like "complements," may be neutralized or bound by various salt solutions (CaCl_2 , BaCl_2 , SrCl_2 , MgCl_2 , K_2SO_4 , NaHCO_3 , $\text{Na}_3\text{C}_6\text{H}_5\text{O}_7$, $\text{Na}_2\text{C}_2\text{O}_4$, $\text{K}_4\text{Fe}(\text{CN})_6$, and other substances, e. g., formalin), so that they cannot act upon bacteria. He divides into two main groups the experiments which he has carried out in order to ascertain whether this idea can be supported by laboratory investigation: (a) Those carried out with the blood of patients before and during a period in which in which they were placed under the influence of potassium iodide; (b) those carried out by adding *in vitro* to the serum of a normal man isotonic solutions of this salt. The conclusions which he draws from the observation of a series of cases and experiments are as follows: (1) The administration of potassium iodide has no influence on the opsonic index of the serum; (2) an iodide eruption is not necessarily associated with a low opsonic index; (3) the addition of potassium iodide to serum, *in vitro*, does not interfere with its opsonic power.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

The Significance of the Eye Symptoms in Disseminated Sclerosis of the Brain and Spinal Cord.—W. UTHOFF (*Ophthalmoscope*, September, 1905).—This paper is a resume of personal results from an examination of 150 cases.

Changes in the Optic Nerve and Optic Conducting Apparatus.—In one-half of all cases the ophthalmoscope shows atrophic alterations as follows: (1) Atrophic discoloration of the whole papilla (comparatively rare, only three to four per cent. of the total number of cases). (2) Incomplete atrophic pallor of the whole papilla, so that the inner parts of the papilla still retain a slight reddish tint; (3) A partial, limited atrophic discoloration of the temporal half of the papilla. The second and third groups constitute about twenty per cent. of all cases. Low grade neuritis is present in five per cent. of all cases. The writer has never encountered a frank neuritis with prominent nerve head. In five per cent. there were disturbances of vision without ophthalmoscopic alterations. The visual disturbances are manifold, but for the most part resemble the appearances in retrobulbar neuritis.

Alterations in the Visual Field are of several forms: (1) Central scotoma (often relative) with an unrestricted peripheral field; (2) central scotoma with peripheral contraction (rare); (3) peripheral irregular contraction (frequent); (4) regular concentric peripheral contraction; (5) ring scotoma (very rare); (6) an initial central scotoma, eventually clearing up entirely, and succeeded by a permanent peripheral contraction. Hemianopsia occurs very seldom, the anomalies of the field usually corresponding to the picture of the peripheral affections of the optic nerve trunk.

In half the cases the visual disturbance sets in quickly. Secondary improvement in visual acuity after primary failure, is observed in fifty per cent. Permanent, complete bilateral amaurosis is extremely rare. Transitory unilateral blindness, usually dependent on optic neuritis, is not infrequent. Peripheral color defects, when present, are usually partial, and are apt to be overlooked unless especially sought for.

Vision is often temporarily impaired as the result of excessive bodily strain or fatigue.

The optic nerve may undergo a simple atrophic process of the type observed in progressive tabetic atrophy, or the final stages of an initial interstitial inflammation may simulate the picture of a simple atrophy. A point of importance in differential diagnosis is the retention, in multiple sclerosis, of the axis cylinder. The vascular changes consist in an increase and widening of the finer vessels, alterations in the walls, and proliferation of the surrounding tissues.

Eye Muscles.—Partial paralysis is encountered in a large number of cases; paralysis in twenty per cent. The former is slight, incomplete and transitory. The abducens is most frequently involved, the oculomotor more rarely. Lateral associated movements are more frequently

paralyzed than the up and down. Paralytic convergent and divergent squints are observed. The vast majority of paralyses are of cerebral origin.

Nystagmus and Nystagmic Twitchings.—Nystagmus, which occurs in 12 per cent., is important in diagnosis, as it is rare in other nervous affections. Nystagmic-like twitchings occur in 46 per cent.—16 per cent. lateral and 30 per cent. in all directions. It is of lesser diagnostic importance than nystagmus proper, because occurring in other nervous diseases and in healthy people.

Pupils.—Miosis with slight light reaction in five per cent.; a difference in size of pupils in four per cent. Neither abnormally sharp reaction to light, nor hippus, has any significance.

Recurrent Iritis—A Study of Nine Cases.—H. WOODS (*Ophthalm. Record*, July, 1905).—The general truths underlying the recurrence of iritis seem to be that a constitutional dyscrasia (as rheumatism or gonorrhoea) is always present; that the exciting cause of a relapse is one or another of numerous irritants that can produce hyperemia, as eyestrain from effort to use an eye incapable of work from former disease or refractive error, pulling an old synechia by pupillary action, exposure to wind, dust, etc.

Prophylaxis is to discover and, if possible, prevent these exciting causes.

A Case of Tubercle of the Choroid Presenting Certain Clinical and Pathological Peculiarities.—G. CARPENTER and S. STEPHENSON (*Ophthalmoscope*, August, 1905).—A little girl, three years of age, presented the following clinical picture: Enlarged spleen, bronchi and rales in the chest, general cyanosis, irregular temperature (97.6 F. to 103 F.), respirations varying from 32 to 76, without physical signs adequate to account for these fluctuations.

On ophthalmoscopic examination, the retinal veins were found enlarged and tortuous, the arteries small, the disks hazy. Situated in the central region of each fundus were about a dozen oval or round fawn-colored tubercles, stippled with retinal pigment, and varying in size from one-fourth to one disk diameter. The macula itself appeared healthy.

Post mortem confirmed the diagnosis of acute miliary tuberculosis, the disease affecting especially the lungs, spleen and choroid.

In addition to the usual appearances of tubercle of the choroid, the eye specimens showed two pathological curiosities; (1) Distinct from the tuberculous foci there was a general infiltration of the choroid with small round cells, which the authors ascribe to a general tubercular choroiditis, and (2) a few nodules of retinal tuberculosis (in one of which tubercle bacilli were found), entirely independent of the choroidal deposits.

The case emphasizes the well-known fact that the most trustworthy sign of acute miliary tuberculosis is furnished by the discovery of tubercle in the choroid. According to the writers, the eye is involved in 50 per cent. of all cases of acute miliary tuberculosis.

BOOK REVIEWS.

THE TREATMENT OF FRACTURES, WITH NOTES UPON A FEW COMMON DISLOCATIONS. By CHARLES L. SCUDDER, M. D. Fifth edition thoroughly revised. W. B. Saunders & Co. Philadelphia and London.

This book is exactly similar in binding, etc., to the other four editions that have appeared and are so well-known to practitioners throughout the country. Many new x-ray plates are added which show the actual line of fracture. Many half-tones have also been added which increase the value of the illustration. The text has been thoroughly gone over, the author calling attention to the fact that fractures of the neck of the femur are receiving different treatment, a change which may prove to be a very radical one. Also the notes on fracture of the carpal bone are somewhat changed and enlarged.

ACUTE CONTAGIOUS DISEASES. By WILLIAM M. WELCH, M. D., and JAY F. SCHAMBERG, A. B., M. D. Lea Brothers & Company. New York City. 1905.

The writers have endeavored in this work to present a practical treatise for the guidance of students and practitioners of medicine. It is a book of seven hundred-odd pages, with 109 engravings and 61 full-page plates. It includes discussion in the most thorough and admirable manner of the following subjects: "Vaccinia," the "Relation of Cow-pox or Vaccinia to Small Pox," "Small Pox," "Complications and Sequelæ of Small Pox," "Chicken Pox," "Scarlet Fever," "Diagnosis of Scarlet Fever," "Measles," "Rubella," "Typhus Fever," "Diphtheria," "The Treatment of Diphtheria," "The Serum Treatment of Diphtheria," "Disinfection." The authors of this book compose a happy combination, one of them being a practitioner of many years experience in infectious diseases, the other an accomplished dermatologist; thus the various phases of the eruptive symptoms of these diseases have been most carefully studied, together with the intercurrent eruptions which frequently complicate and confuse these conditions. Dr. Schamberg's excellent work upon the septicæmic rashes complicating small-pox is an extremely valuable addition to the volume. The illustrations are excellent. The reviewer is especially pleased at the clearness with which the differential diagnosis is portrayed, and he therefore considers this volume of exceptional merit and value.

THE PHARMACOPŒIA OF THE UNITED STATES OF AMERICA. Eighth Decennial Revision. P. Blakiston's Sons & Company. Philadelphia. 1905.

The recent revision of the U. S. Pharmacopœia is characterized by several important changes. There are 117 additions and 155 articles dismissed. Of the additions are especially to be noted the great number of synthetic products, a number of active principles of drugs hitherto represented only in the crude form, and certain new salts of drugs which are more soluble, or have greater stability than those formerly in use. Most striking is the admission of *serum antidiphthericum*, for which an American standard has been fixed. Following the "International Conference for the Unification of the Formulas of Heroic Medicine," the present revision adopts a 10 per cent. or 20 per cent. strength for all tinctures, so that for instance the tincture of aconite is reduced from 35 per cent. to 10 per cent., the tincture of cantharides is increased from 5 to 10 per cent. This represents a step towards a much-to-be desired uniformity of standards throughout the world.

The changes in terminology are in part very admirable. All those synthetic compounds of definite chemical formula have been named, if not by the exact chemical expression, by terms approximating these, dispensing with the often fantastic and misleading trade names. Thus "phenacetin" has been admitted as *acetphenetidin*, "urotopin" as *hexamethylamin*. In the case of "carbolic acid" the chemical term *phenol* has been made the official designation. The liberty taken with Latin diction in converting

"extracta fluida" into "fluidextracta," while perhaps less confusing from the standpoint of the indexer, is scarcely a philologically commendable precedent.

Finally, a large number of assay processes for drugs of vegetable origin, has been incorporated in the present revision of the pharmacopœia. This will insure a greater uniformity in purity, strength and therapeutic action of the drugs so protected.

INTERNATIONAL CLINICS. J. B. Lippincott Company. Philadelphia and London. Fourteenth Series, Vol. IV, 1905. Fifteenth Series, Vol. I, 1905. Fifteenth Series, Vol. II, 1905.

These volumes of International Clinic fully uphold the good repute in which the publication is already held. Of the articles of special note in vol. iv (fourteenth series) may be mentioned Joval, on the "Indications for the Dechloridation Treatment;" Dyer Duckworth, on the "Incidence of Gout in the United States of America and in New Communities;" Gallant, on the "Symptomatology and Diagnosis of Glenard's Disease;" Craig, on the "Etiology and Pathology of Amœbic Infection of the Intestines and Liver."

Vol. i (fifteenth series) contains articles by Walsh on the "Eye and Hand in the Diagnosis of Heart Disease;" Parkinson, on the "Early Diagnosis of Heart Disease in Children;" Benedict, on "Intestinal Adhesions;" Bramwell, on "Two Cases of Ocular Palsy."

Vol. ii (fifteenth series) the following articles are worthy of particular attention: Morse, the "Treatment of Acute Nephritis in Children;" Edes, "Suggestions Regarding the Treatment of Neuraesthesia;" Willson, "The Diagnosis of Incipient Thoracic Tuberculosis;" Corner, "The Pathology and Treatment of the Hernie of Children," etc.; Terrier, "The use of Scopolamin as a General Anæsthetic in Surgery;" Wiesel, the "Anatomy, Physiology and Pathology of the Chromaffin System, with Special Reference to Addison's Disease and Status Lymphaticus."

MANUAL OF GYNECOLOGY. By D. BERRY HART, M. D., F. R. C. P. E., F. R. S. E., Lecturer on Midwifery and Gynecology, Edinburgh, and A. H. FREELAND BARBOUR, M. D., F. R. C. P. E., F. R. S. E., Lecturer on Midwifery and Gynecology, Edinburgh. With 12 lithographs and 359 woodcuts. Sixth edition. Chicago: W. T. Keener & Co. 1905. Price, \$5.00 net.

It is probably sufficient to announce here that this well-known book has appeared in its sixth edition. Although the views of the writers in general coincide with those given by most of the American authors in their text-books, this volume, possibly on account of the concise presentation of the subject, has become quite popular with the American student. For the specialists the large number of references appended to each chapter will prove of interest and value.

DIETETICS FOR NURSES. By JULIUS FRIEDENWALD, M. D., Clinical Professor of Diseases of the Stomach in the College of Physicians and Surgeons, Baltimore; and JOHN RUHRAH, M. D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. 12mo volume of 363 pages. Philadelphia and London: W. B. Saunders & Co. 1905. Cloth, \$1.50 net.

"Dietetics for Nurses" has been written on the same practical lines as the larger work on Diet by the same authors. It has been prepared both to meet the needs of the training school and to serve as a ready reference book for the nurse when on a case. The essentials of dietetics are given in a concise, clear manner and the physiology of digestion with the various classes of foods and the part they play in nutrition have been carefully reviewed. This is an excellent little work indispensable to the well-trained nurse.